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IMMUNIZATION AGAINST DIPHTHERIA*

F. ADAMS, M.B., D.P.H.

M.O.H. for Essex Border Municipalities

AFTER over 30 years use of antitoxin, the situation in regard to diphtheria appears to be:

(1) The incidence of the disease has not been substantially reduced. Exhibiting fluctuations from year to year, it continues about as prevalent as in pre-antitoxin days.

(2) The death rate has been cut down substantially and is but a fraction of what it used to be, but is still serious. About 7% of diphtheria cases still die.

This being so, it must be plain that diphtheria is still a major public health problem and that if we have any new weapons against the disease, it is high time that we put them into general use.

As a matter of fact, science has within the last few years put into our hands new and exceedingly promising weapons against diphtheria and the main purpose of this paper is to briefly consider the somewhat recent additions to our knowledge of diphtheria and its control.

The Schick test is, of course, a simple harmless skin test which tells whether the individual tested has in his blood stream self-manufactured diphtheria antitoxin and is as a consequence immune or whether, on the other hand, he possesses no natural antitoxin and is therefore susceptible.

The Schick testing of many thousands of persons has added materially to our knowledge of diphtheria and has made possible some very interesting speculations and deductions.

Park gives the results of 20,000 Schick Tests on persons of all ages as follows:

Age	Average Susceptible Per cent.
At birth	10
Under 4 months	15

*Read at the Combined Meeting of the Section of Preventive Medicine of the Canadian Medical Association and Canadian Public Health Association, Toronto, June 16th, 1927.

4 to 6 months	30
6 to 9 months	60
9 to 1 year	75
1 to 2 years	75
2 to 3 years	65
3 to 5 years	40
5 to 10 years	30
10 to 20 years	25
Over 20 years	20

This table is interesting from several standpoints. First of all, it fits in with clinical experience. The age distribution of actual diphtheria cases conforms closely to what one would expect from Park's table. One very important and practical deduction which may be drawn from this table is as follows: Why is it that 75% of children at age 2 are susceptible—that from that time on the percentage susceptible gets less and less until at adult ages only 20% are susceptible? It is plain that nature has some process of immunizing individuals as they grow older. What is the process?

The theory has been put forward that immunity develops as a result of subclinical infections—that children as they reach the runabout age begin to pick up slight or mild diphtheria infections which go unrecognized, and as a result of these infections, become immune.

Considerable evidence has been brought forward to support this theory. Zingher has shown that there is a much higher percentage of susceptibles among children living in good residential districts and therefore little exposed to chance infection, than there is among those living in overcrowded slum areas and therefore exposed to chance infection a great deal.

Dudley made observations in a large boys' school on what happens when susceptible persons enter a known diphtherial environment. He found that 45% of the boys entering the school as new scholars were susceptible to diphtheria by the Schick test. Ten months later, 9 out of 10 of these susceptibles were immune, although none of them had suffered from recognized diphtheria. During the 10 months, however, diphtheria cases and carriers were found in the school. From his observations, Dudley concluded that the effect of a known diphtherial environment is to increase the percentage of immunes and he believes this due to unrecognized infections.

Now, having in mind that all children must run the gauntlet of diphtheria infection, having in mind that most of them will win through immune but that some—still a serious and pitiful total—will die, it is natural to ask whether we cannot take a page from nature's book and immunize children much as nature does—in the same permanent and durable way—but not in the haphazard way that nature employs, but in an orderly, controlled way, with all the danger removed.

The answer, I think, beyond any reasonable doubt, is that we can do that. We have two substances, either one of which injected in repeated doses under the skin of a child, will cause him to develop a durable immunity in precisely the same way as he does from chance infection and with no danger whatever.

The two substances referred to are (1) Toxin-antitoxin, and (2) Toxoid (Anatoxine-Ramon). As far as immunizing ability is concerned, there is very little to choose between the two materials. Both of them simply stimulate the recipient to manufacture diphtheria antitoxin. We say we actively immunize a child. That is not strictly correct. We supply the stimulus and the child immunizes himself by manufacturing his own personal supply of antitoxin. Because he has manufactured it himself, he keeps it for a long time—for years at least, and probably for life. Whether toxin-antitoxin or toxoid is used, it is believed to be necessary to give more than one dose. There is reason to believe that it is after the *second* dose that a child begins to manufacture antitoxin in quantity. It is probably true also that in nature it is necessary for a child to pick up a mild unrecognized diphtheria infection more than once in order to develop a good degree of immunity.

Toxin-antitoxin has been widely used in the U.S.A. and with most excellent results. Sears' classic demonstration at Auburn, N.Y.—a city of 36,000 persons, should be read by everyone interested in the war against diphtheria. It is reported in the *American Journal of Public Health*, February, 1925. After 3 years work, Sears had 85% of the school children of Auburn immunized and was able to report as follows: "During the past school year there were no cases of Diphtheria among the school children whom we had immunized and 7 cases and no deaths among the children not immunized. During the four years just previous to our work, there had occurred in the City of Auburn a yearly average of 104 cases of diphtheria, resulting in 14 deaths each year, with an enormous loss of school attendance due to quarantine from this disease. It will be seen that we have nearly accomplished what we planned to do, namely, eliminate diphtheria from the schools of Auburn by this procedure."

Slemons at Grand Rapids has accomplished a similar reduction by the wholesale immunization of school and pre-school children.

In Canada, Toxoid would appear to be preferred over Toxin-Antitoxin. Its immunizing value is believed to be quite equal to that of Toxin-antitoxin and it possesses two distinct points of superiority; first, it contains no horse serum and there is therefore no danger of sensitizing the child to that substance, and second, it is completely non-toxic.

Toxoid was introduced by Ramon, of the Pasteur Institute, Paris, in 1923—only four years ago. Naturally, with a product so new, there are no demonstrations covering a period of years that can be reported at this time or from which entirely reliable conclusions may be drawn.

In the Border Cities we have probably had as much experience with

Toxoid as any other place in Canada, and while it is too early to reach final conclusions, an interim survey of apparent results may be of some value.

Certain preliminary facts are necessary for an understanding of our results. All told, approximately 12,000 children in the Border Cities have received two doses of Toxoid, either in the autumn of 1925 or the autumn of 1926. The great majority of this number were of public school age. We estimate that approximately 11,000 children out of a total public school population of 20,000, have had two doses of Toxoid.

It is important to mention that the immunizing injections were given by the Board of Health and by many private physicians and that practically no Schick tests were done before or after, so that we very definitely laid ourselves open to the possibility of diphtheria cases occurring in children who had had a full course of protective injections.

The apparent result of immunization in the Border Cities is shown in the following table:

TABLE "A"
DIPHTHERIA
CASES REPORTED IN BORDER CITIES

	1920	1921	1922	1923	1924	1925	1926	1927
January	10	45	10	12	47	10	13	10
February	6	30	7	7	41	6	16	10
March	7	29	7	12	43	13	4	1
April	8	20	5	12	9	11	8	4
May	4	26	3	12	17	10	7	5
June	3	14	5	11	11	7	5	9
July	7	6	2	7	3	8	2	8
August	9	7	7	6	6	10	7	6
September	8	3	8	13	12	24	20	21
October	45	28	12	69	38	*29	†12	21
November	78	32	13	41	34	*23	†12	13
December	72	32	6	36	48	*14	6	6
Totals	257	272	85	238	309	165	112	114
	1920	1921	1922	1923	1924	1925	1926	1927
Population	53,000	58,000	62,000	65,000	74,000	83,000	90,000	98,000
(Diphtheria cases per 100,000 of population)								
	1920	1921	1922	1923	1924	1925	1926	1927
	485	469	137	366	418	199	124	116

*Autumn 1925—First Toxoid immunization campaign.

†Autumn 1926—Second Toxoid immunization campaign.

This table shows the diphtheria cases reported month by month in Border Cities from 1920 to 1927 inclusive. It will be noted that our first toxoid immunizing campaign covered the closing months of 1925 and that in 1926 we

had less diphtheria than we had had for several years back and that following the second immunizing campaign in the closing months of 1926, we have run along very satisfactorily in 1927. Of course, we realize that it is unwise to draw too definite conclusions from a compilation such as this. There is a natural fluctuation in diphtheria from year to year and no one can say what kind of a diphtheria year we would have had in 1926 had we done no immunizing whatever. Our own feeling, however, is that we were in for a bad year and that our immunization campaign headed it off, because Detroit is just across the Detroit River from us—there is a great deal of intercommunication—and Detroit had a distinctly bad diphtheria year in 1926 and we usually suffer if they do and vice versa. This conclusion is further supported by the facts brought out in Table B.

TABLE "B"
FREQUENCY OF DIPHTHERIA AMONG SCHOOL
CHILDREN OF BORDER CITIES
1926 and 1927

	Immunized Children 2 Doses Toxoid	Children not Immunized
Number of Children	11,000	9,000
Cases of Diphtheria reported	17	103
Frequency rate per 1,000	1.55	11.44

This table shows the relative frequency of diphtheria among the 11,000 school children who were immunized and the 9,000 school children who were not immunized. You will note that among the 11,000 children who had two doses of Toxoid but who were not Schick tested subsequently, there were 17 cases of Diphtheria and among the 9,000 school children not immunized there were 103 cases of Diphtheria. It would appear that 2 doses* of Toxoid will not immunize all children but will immunize a sufficient number so that in a large group diphtheria will be only about 1/7 as frequent as it otherwise would be.

Quite apart from the results given, our experience with Toxoid in the Border Cities enabled us to make one very important observation.

Any method of active immunization must be used very widely to accomplish real results in the control of the disease against which it is aimed. Whether the general public will take kindly to the procedure will depend on two main considerations:

- (1) The certainty and simplicity of the procedure for immunization.
- (2) The frequency and severity of the reactions following the immunizing procedure.

Our observations on the question of reactions following Toxoid are, we believe, important and trustworthy, and are as follows:

- (1) At ages 7 years and younger, there are no reactions worth mentioning.

*See Editorial Note, page 56.

(2) At ages 8 and up reactions are frequent.* One child in 4 will have some reaction and in 1 in 40 will have a severe reaction that will necessitate absence from school or confinement to bed for from 1 to 5 or 6 days. By a severe reaction is meant a very sore, dusky red, swollen oedematous arm or general reactions consisting of malaise, headache, prostration, sometimes nausea, and a fever up to 104, either with or without a sore arm. Such reactions, while alarming, are not dangerous.

Having in mind that diphtheria is most prevalent and fatal under 10 years and particularly under 5 years, and that reactions are negligible below 8 years, it would seem wise from our experience to make a special effort to immunize children in the early years of life.

In immunizing persons over 8 years, a warning should be given that a reaction is a possibility.

Conclusions:

(1) Diphtheria is still a major public health problem—prevalence not substantially reduced and death rate seven or eight per cent. of cases.

(2) Active immunization of large numbers will substantially reduce the prevalence of diphtheria and the number of deaths.

(3) Toxoid is a satisfactory material for active immunization.

(4) As far as scientific knowledge of the disease and its control is concerned, it would appear that it lies within our power to reduce diphtheria to the disappearing point.

*EDITORIAL NOTE.—It has been found two doses of toxoid actively immunize seventy per cent. of individuals. In the autumn campaign of 1927 three doses were used. By this latter dosage the percentage of those immunized is definitely higher. Roubinovitch, Loiseau and Laffaille in France have reported that ninety to ninety-five per cent. were immunized with three doses.

It is recommended that a skin test with appropriately diluted Toxoid be performed before immunization of all adults and older children. Appropriately diluted material accompanies each package of toxoid. Sensitive individuals may be successfully immunized with smaller dosage.

MEDICAL MEN AND NARCOTICS: A WARNING

With reference to the following article it was thought desirable to get in touch with the Dominion Department of Health with a view to attaching a formal statement covering certain phases of the subject under discussion. The comments by Dr. J. A. Amyot, Deputy Minister of Health, Ottawa, immediately follow this article.

A RECENT case at Osgoode Hall indicates that the very stringent provisions of Canadian law as to giving Narcotics to be used by the individual himself, may not be as well known in the Profession as they should be.

A young Doctor, just beginning the practice of his profession, came under suspicion of the Police in respect of violating the law; an addict who, failing to find a better way of making a living, had offered his services to the detective department, was employed to catch the Doctor, if he was in fact so transgressing. The "spotter" went to the Doctor's office, said that he was an addict, that he had a severe abdominal pain and asked for morphia to relieve it. The Doctor made no examination but acceded to the man's request, went out and bought a considerable quantity of the drug and gave it to the patient. Then, the spotter said that he was always sick after he used morphia and that he could get relief only by taking cocaine; he asked the Doctor to get him some cocaine, and the Doctor did so, procuring for him a very considerable quantity. An Information was laid, and the Doctor convicted before a Police Magistrate, who showed all the leniency which he could find the law permitted, and fined him \$200. The Doctor foolishly appealed to the Court of Appeal at Osgoode Hall, and that Court upheld the Conviction. Unfortunately for the Doctor, however, the Court also found that the Magistrate had no power to let the accused off with a fine, but that the law imperatively required a sentence of imprisonment: the Court was lenient and sentenced the Doctor to the shortest term allowed by the law, *i.e.*, three months in prison.

In view of the very serious consequences that may result from an infraction of the Statutes a prominent member of the Law Society was asked to state for the information of the sister Profession, precisely what the law is; and he has been good enough to accede to the request.

STATUTORY LAW OF CANADA AS TO NARCOTICS AND AS AFFECTING MEDICAL MEN

1. Differing from many offences in which the intent is the important matter and an act is not a crime unless there is criminal intent—what lawyers call the *mens rea*—in this case of furnishing narcotics the law looks at the act alone, and no good intention helps the accused in the slightest degree. Like the road to Hell, the road to the gaol may be paved with good intentions.

2. Ignorance of either law or fact or of both is no defence; ignorance of law does not excuse in any criminal case; and in this case, differing from some other cases, ignorance of fact does not excuse either.

3. The Doctor must make sure of the facts before giving narcotics to anyone; belief, however honest, will not serve: there is always open to him the way of refusing, and the Doctor should consider that giving the drug is *prima facie* unlawful, and must be sure that the facts justify him before acting.

4. There is nothing to prevent a Doctor from prescribing or administering a narcotic as a medicine in the medical treatment of a patient who in the honest opinion of the Doctor requires it as a medicine.

5. The Doctor may not prescribe, administer, give, sell or furnish the drug to anyone else.

6. In a case coming under No. 4, above, the Doctor may give the drug to the patient to take away with him and administer it to himself according to the directions of the Doctor,—*unless* the patient is a *drug addict or habitual user of drugs*. If the patient is an addict or habitual user of drugs suffering from a diseased condition caused otherwise than by the excessive use of any drug, then and then only may the Doctor give him the narcotic drug for self-administration. But it must always be borne in mind that the Doctor does this at his own peril as to the existing and actual fact, and that belief however honest will not suffice for a defence if the fact turns out different. It is always “better to be safe than sorry”.

7. The statute has application to the following drugs, which we have been calling “narcotics”, namely:—

Opium and Narcotic Drug Act Schedule.

Cocaine or any salts or compounds thereof.

Morphine or any salts or compounds thereof.

Heroin or any salts or compounds thereof.

Codeine or any salts or compounds thereof.

Opium or its preparations, or any opium alkaloids, or their derivatives, or salts or preparations of opium alkaloids or their derivatives.

Eucaïne or any salts or compounds thereof.

Cannabis Indica (Indian Hemp) or Hasheesh, or its preparations or compounds or derivatives, or their preparation and compounds.

8. The punishment, according to the method of prosecution adopted by the Crown, is either a fine from \$200 to \$1,000, and costs; or imprisonment from three to eighteen months.

9. And the moral is: "Don't do it".

COMMENTS OF DR. J. A. AMYOT, DEPUTY MINISTER OF
HEALTH OTTAWA

I HAVE your letter of January 12th, enclosing an article dealing with the law in regard to narcotics, which it is proposed to publish in the February issue of your JOURNAL.

In reply may I say that in so far as the nine paragraphs as prepared by a member of the law society, are concerned, I think that they are extremely well done, and would be of the greatest possible assistance. The only suggestion I have to offer is that the reference to codeine or any salts or compounds thereof, in Paragraph seven, be eliminated, as this drug is no longer included in the Opium and Narcotic Drug Act Schedule.

With regard to the first part of the Article, however, I feel that I am in a position of some difficulty. There is, of course, no doubt whatever, that the case referred to is that of ——— of ———, and the outline given thereof is hardly a complete description of all the attending circumstances; but, as the accused physician pleaded guilty to the five remaining charges, possibly realizing that by so doing the evidence would not require to be given, it is not possible for me to refer specifically to the evidence which would have been given. If, on the other hand, I do not place you in possession of all the facts which are at least upon the Court Records, it is quite conceivable that the members of your Association, on reading the Article, would consider that the physician in the case referred to, had been, on one occasion only, trapped by an addict, and as a result was compelled to undergo a punishment which would appear to be disproportionate.

You may take as an absolute fact that never, under any circumstances, does our Narcotic Branch act in cases of this kind, with a view to obtaining evidence, which can be produced in Court, unless strong suspicion exists in the first place, which suspicion has been, so far as is possible, confirmed by careful and discreet inquiries. Further, while the very nature of the offence of furnishing narcotics for the gratification of the appetite, as distinct from the amelioration of a medical condition, may cause the use of an addict to be essential, in obtaining evidence, as of course it is ridiculous to assume that infringements of the law can be detected by sending a Mounted Policeman in full uniform to the doctor's office; we do, as a matter of fact, prefer to employ

people who are not addicts when suitable personnel is obtainable, and, as a matter of fact, in the case now under discussion, the agent employed, who commenced his services with this Department in May last, was emphatically not an addict at that time, although he had previously been one, and he was under the constant supervision of reliable members of the Mounted Police for a number of months, under conditions which practically precluded his reverting to his former condition. It was not until he had completed certain cases, and almost reached the conclusion of others, that he fell from grace, whereupon we immediately placed him in hospital, to undergo a cure, and he has remained free from addiction ever since.

I therefore think that perhaps the statement that "An addict who, failing to find a better way of making a living, had offered his services to the Detective Department, was employed to catch the doctor", is scarcely a fair statement of the circumstances.

Assuming therefore, that you will appreciate that I am not, in view of the circumstances related above in regard to the doctor pleading guilty, at liberty to go into such details as would otherwise be the case, I can only say that on six separate occasions this physician supplied narcotics to the same agent for the gratification of the appetite, and received considerable sums of money therefor, and that on four at least of the occasions in question, the narcotic involved was cocaine, and that the narcotics so obtained were immediately handed over to the detectives who were shadowing the operative, and were not used by the agent for the gratification of his appetite.

On the occasion of the trial of the first charge, the facts are correctly stated by you. Although we realized that the physician had been subjected to an illegal penalty in being fined \$200.00, when the law clearly stated that the minimum was three months imprisonment, we issued instructions to our solicitors that we would not appeal unless the accused himself appealed, as we felt that the ends of justice would be served when he was tried on the remaining five charges. As you stated, in due course the High Court dismissed the physician's appeal and allowed ours, with the result that the physician was sentenced to three months imprisonment. We consented to delay the warrant of commitment for a week, in order to enable him to adjust his affairs, and particularly in view of the fact that at the end of the week, he would be appearing at the Assizes on the remaining five charges.

In due course, he appeared before the County Judge at ———, elected for a speedy trial, pleaded guilty to all five charges, and on the instructions of this Department, our solicitor then stated that we had no desire to press the matter unduly, and that if the Judge saw fit, we would be willing for him to impose the minimum sentence on each charge, all of them to run concurrently, not only with each other but with the three months already imposed by the High Court. This was done, and the physician was placed in the County Jail the same night.

The action of this Department in proceeding with the remaining five charges was largely with a view to establishing the point which is not brought out in your Article, namely, that the law had not been broken on merely one occasion, but that there had been a series of such offences, the suspicion of which led to this Department taking action in the first instance.

It is, of course, essential that the work of the Narcotic Branch should be of a highly confidential nature, but I can assure you, without any breach of such confidence, that prosecutions against professional men are not authorized until after the most careful consideration, and that in a very much larger number of cases, appropriate action is taken without reference to the Courts, by communicating as tactfully as possible with the physicians concerned, and pointing out the situation in which they have placed themselves. The results accruing from this method are very satisfactory, but it is obvious that such method is not applicable in one hundred per cent. of the cases, and when recourse is had to the Courts, it is because this Department is of the honest opinion that the circumstances are such as to amply justify us in placing the facts before the Courts, and leaving to them to decide as to whether or not the accused is guilty, and if so, to receive such punishment as, under the law, and at their discretion, should be awarded.

In view of the above, I trust that you will agree with me that it would not be advisable to publish the first part of the Article, as it reads at present, and in the event of your deciding to make any changes therein, might I suggest that the point we stress is that addiction is a deadly menace. The use of narcotics, except for purely medical reasons, inevitably results in moral degradation, and it would be of the greatest possible assistance if it could be impressed upon the medical profession that catering to addicts, even with the best intention, is merely helping them on their road to the destination which, in the vast majority of instances, is a descent into the underworld, and the complete abandonment of their status as decent citizens.

PERIODIC HEALTH EXAMINATION

A. GRANT FLEMING, M.C., M.B., D.P.H.

Director of the Montreal Anti-Tuberculosis and General Health League

IT is not my intention to attempt what at best could be but an inferior repetition of what has been so often and so well said concerning the value of periodic health examinations. We have heard or read many excellent presentations of the subject which, I believe, have convinced us all that there exists a considerable amount of unrecognized, certainly untreated, physical impairment and early disease. We also appreciate that many persons live at a low level of physical and mental fitness because of unhygienic habits. I believe we have all been convinced that periodic health examinations offer the best opportunity for the discovery of such conditions and also for advice to the individual in regard to hygienic living.

There perhaps has not been sufficient appreciation of the fact that health examinations are essentially a preventive measure, and that for every organic lesion found, there will be many of a functional nature which will yield to hygienic treatment.

I believe we have been convinced that the family physician is the person who should make these examinations, and that the standard of examination should be that of good general practice.

The organized medical profession has given its official endorsement to the principle and there is satisfactory evidence that the individual members of the profession, in increasing numbers, are anxious to take their place in this newer field of medical practice.

It is appreciated that it will require time before the profession, as a whole, adapts itself to any new method. The medical practitioner is so used to dealing with disease that he is apt to pass as "fit" the person free from organic disease. He will have to learn more of functional disorders, to understand variations within normal, to think of the individual with his worries, and so be able, in a sympathetic and understanding way, to guide him towards physical and mental health.

The Massachusetts Medical Society Committee on Periodic Health Examinations summarized its findings under the following nine points, which express the generally accepted views in a clear, concise manner.

1. A permanent record;
2. Ample time for examination;
3. A careful study of the individual case;
4. Examination of the patient without clothing;

*Read at the combined Meeting of the Section of Preventive Medicine of the Canadian Medical Association and Canadian Public Health Association—Toronto, June 16th, 1927.

5. A thorough review of the findings of the history and physical examination;
6. Careful and explicit advice to each individual patient, with adequate appreciation that organic soundness is often associated with marked functional disturbances;
7. Utilization of the interview after the physical examination for instruction in the simple rules of hygiene;
8. Encouragement to the patient to report periodically for re-examination, ordinarily at the end of a year, and always at the onset of striking symptoms, particularly losses or gains of weight, persistent cough, etc.;
9. Adequate remuneration for services.

As public health workers, our particular interest is now directed as to how health examinations are to be made available for the whole population. If health examinations are to be of real value; if they offer the best hope of the earliest discovery of disease; if they constitute the best health measure suggested to deal with the degenerative diseases of middle life against whose ravages so little impression has been made; if they offer the best opportunity for individual instruction in hygienic living, then it is the real responsibility of public health workers to point out the way in which these examinations may be made available for one and all.

It has been suggested, to begin with, by a well-recognized leader in this field, that we need not worry about those unable to pay for such examinations because, in any case, their economic position makes it impossible for them to benefit from such examinations, as they would, in most cases, on account of their economic position, be unable to act on the advice given.

I do not think this is a sound position. There is no group to whom physical fitness is of such paramount importance as it is to the group low in the economic scale. We know that with them sickness is their worst enemy for it means actual want and, frequently, dependency. Mr. G. B. Clarke, Secretary of the Family Welfare Association of Montreal, in a recent article, stated that amongst an unselected group of their cases, there was a health problem in 82% of the number (not including old age).

It would seem that both from the standpoint of the individual worker and that of national interest, it is essential that all workers be included in any scheme which offers protection from disease and an increase in physical vigour.

The same thing is true as regards women not in industry. We talk a great deal about the importance of healthy motherhood and what it means to the nation and the family. There is no doubt but that the home is built around the mother. The care of the children, the proper feeding of the family, the cleanliness of the home, the health habits of the family are practically dependent upon her. If she is to do this most important work well, at least to the best of her capacity, then she must have health and freedom from disease. It seems reasonable, therefore, to expect that women both in and out of industry should be given the protection and benefits offered by periodic health examinations.

In considering the population as a whole, we may, for our purpose, divide it into three groups.

There is the wealthy group, the group who, on account of their accumulated wealth, can afford to be sick. The group who can afford, without question, to pay for health examinations, and to pay for any treatments recommended as a result of the examinations, and who have financial ability to follow the hygienic routine prescribed for them.

The second group consists of what we may call the middle class—a group which is able to pay its way but without any real reserve. This group manage their affairs best by budgeting and by means of insurance. They cannot afford to take chances on sickness and so, in general, they insure themselves against accidents and sickness. By voluntary group effort, they meet the problem of the percentage who have illness before they, as individuals, have time to provide financially for it. Those in this group who do not insure themselves in such a way, simply gamble that they will be lucky or that, in some way, they will be cared for.

There is the third group which, unfortunately, is a large one. I refer to those whose total earnings meet or fail to meet the bare necessities of life. In truth, it is always a wonder how they manage as well as they do. On their income, any money spent on illness or lost through illness, simply deprives the family of necessary food, clothing or shelter. This group are not in a position to insure themselves against illness, they are forced to take their chances and hope for the best. It is amongst this group that we find tuberculosis cases working until actually within a few weeks of their death. Courage they have, resources they have not. When they fall ill, they become public charges, and so they always will under our present economic conditions which fail to afford a living wage to so many. We hear much in the way of protest that too much is being done for people, that persons able to pay for it secure free medical treatment. These evils do exist, but the greatest evil by far is that many do not receive treatment who should, or at least do not receive proper early treatment, and so do not come under treatment until serious or fatal conditions have developed.

There are two problems presented; one is the securing of a proper health examination, the other is securing the means for acting upon the advice received.

I believe we should make it known that this specific problem (as is true of so many of our health problems) is largely an economic one, and that improved economic conditions of the masses would go far towards solving it. While this is true, we must be prepared to think of conditions as they actually exist, not losing sight of the fact that low wages and irregular work bring about conditions which affect health in a most disastrous manner.

In any suggested programme for meeting the problem, the question of medical service should be kept absolutely separate and distinct from everything else. To my mind, there are two real criticisms of National Health Insurance

in England. The first concerns the linking together of medical service and sick benefits. I do not think this is at all necessary. When we insure ourselves against sickness or accident with a private company, we retain the right of selecting our own medical attendant. He has nothing to do with the insurance benefits at all. So if there is introduced a national insurance scheme which, in addition to providing medical care during illness, would provide payment for a yearly health examination, there is no reason why the choice of physician and the payment to a physician should not be separate and entirely divorced from any other consideration. The money would pass to the individual to pay to the physician of his choice, or the physician could bill the insurance company or the government, as the case might be.

The second real criticism of National Insurance in England is that it is not sufficiently preventive; it rather encourages sickness. While I do not believe that this is entirely true, still I do believe that anything which would emphasize the preventive side of such a scheme, such as periodic health examinations, might, with great advantage, be incorporated into it.

I am not suggesting that I have concluded an insurance scheme is the best way to meet the need. I do state frankly that, at present, I see no better way of meeting the problems of medical care for the general public and the provision of routine health examinations for all than through some scheme of insurance.

In saying this I have two things in mind. The first is that health examinations would be desirable for everyone, particularly those least able to pay for them, and who can least afford to be ill. The second is that the medical profession must be properly remunerated for its service. No plan of health examinations should be built up on the supposition that it can be done at the expense of the profession.

The Dominion Government, in connection with the venereal disease work, has shown very satisfactorily how, working with and through the Provincial Health Departments, it was able, quickly and effectually, to bring into being a special health measure to practically cover the Dominion. It would appear to be a reasonable suggestion that the Federal Department of Health should, in co-operation with the Canadian Medical Association, seek to devise some scheme by which, in collaboration with the Provincial Health Departments, periodic health examinations should be provided for the people of Canada.

It is a big undertaking and will doubtless require much study, which is all the more reason for beginning the study soon. Its development might go far to meet the problems of maternal, infant and school hygiene, particularly in the less-organized parts of the country.

We should give at least as much attention to the quality of our nation as to the quantity, and if a health measure promises increased efficiency and happiness, it must be brought into action as soon as possible for the common good.

MEDICAL AND LEGAL ASPECTS OF DRUG ADDICTION

DR. A. R. RICHARDS, F.R.C.S. (EDIN.)

IN my work as physician at the Industrial Farm, Burwash, I have charge of the medical treatment and care of drug addicts committed to that Institution. As all these addicts are sentenced in the law courts I am to some extent in touch with the legal aspects of drug addiction. It is with these two phases of this important subject I propose to deal.

LEGAL ASPECT.—In regard to the legal aspect, I shall summarize the series of events which lead up to the legislation as we have it to-day. It is needless for me to draw your attention to the serious nature of an infringement of the Opium and Narcotic Drug Act. From time to time one sees cases in the public press of medical men who have been brought to court for offences against this law. These unfortunate occurrences are most often due to the doctor not being sufficiently well informed with respect to the Act. I have been surprised at the number of physicians whom I have met at medical conventions and elsewhere, who have only a very vague idea of what the law requires of them in regard to the prescribing of narcotics to drug addicts. There is really little excuse for this lack of information as the medical societies in the various Provinces keep the profession in touch with new regulations. In spite of this, the fact remains that many of our general practitioners are poorly informed as is evidenced when they are confronted with a case of actual drug addiction. The matter of legislation has many aspects, and as our present laws are, in some respects, the result of international agreement I propose to give a brief review of the latter.

The first International Opium Convention was held at Shanghai in 1908, at the instigation of the Chinese Government for the purpose of limiting the production of, the trade in, and use of opium. This convention passed four resolutions in an attempt to accomplish this objective. The next International Convention was held at the Hague, in 1911-12. It passed resolutions for the further restriction of production and trade in narcotics, and provided for the licensing of all dealers. This convention was ratified in 1914 by practically all nations represented except Germany and Austria.

The World War followed and not only did drug suppression practically cease but many new-comers were recruited to the ranks of the drug addict. Following the war the peace treaty provided for the incorporation of the Hague International Opium Convention. Accordingly it was brought into force and the League of Nations was given the power of general supervision of the traffic in opium and other habit-forming drugs. An advisory committee

was appointed by the League, which, after gathering as much information as possible on the narcotic problem, called together two conferences at Geneva in November, 1924. The first consisted of those countries having interests in the far East, where the production and use of opium was most extensive. The second consisted of all countries having any interest in the narcotic problem. These conferences completed their work in 1925, but so far, international arrangements do not appear to have controlled the narcotic problem.

When one considers that production is far in excess of Medical requirement; that Turkey, Persia, India, China and Greece are the chief producers of opium; that Peru, Bolivia, Malay States, Siam, and Ceylon are the chief producers of the cocoa plant, and that the European nations, especially Germany are among the chief manufacturers of morphine, heroin and cocain from these raw products; one can well understand why it is that for the present at least, the narcotic problem cannot be completely controlled by international agreement.

Legislation in Canada.—Now let us consider the laws of our own land. The need for better legislation in the matter of opium was first brought to the attention of the Federal Government in 1908 when following some anti-Asiatic riots in British Columbia, large claims were filed for the loss of the opium destroyed. After the situation was investigated we had our first legislation limiting opium. It became an offence for anyone to have in his possession, manufacture, buy or sell, opium for other than medical purposes. This act was only one step in the right direction, for drug addiction in other forms was becoming very prevalent. In 1911 the Government passed an act prohibiting the manufacture, sale or possession of cocain, morphine, heroin and opium for other than medical purposes, and required that such drugs could be bought only on presentation of a proper prescription. This legislation carried us on into the later years of the war, when in order to conserve the available supply of opiates needed for medical purposes, Canada entered into a war-time agreement whereby all imports and exports of opium, morphine, heroin, and cocain were restricted under license. This system of license was continued by a special act of Parliament in 1919. Following the war, Canada, being an assignee of the Peace Treaty and hence of the Hague convention, was compelled to enact new legislation. This was done by an act in 1920, which required that all dealers and manufacturers procure an annual license, and keep an accurate record of all narcotics handled, and that all distributors of narcotics in connection with the various professions make a declaration on prescribed forms. This act was again amended in 1921-22.

In 1923 the act was consolidated and with its amendments of 1925-26 is the legislation governing us to-day. It covers the following drugs:—cocain, morphine, heroin, opium, eucain, cannabis indica, (India hemp) and any of their salts, compounds or derivatives, except apomorphine, and codeine. No one except properly licensed manufacturers and dealers are allowed to manufac-

ture or deal in these drugs. No one except properly licensed physicians, dentists, and veterinary surgeons, are allowed to have these drugs in their possession. They must be used for strictly medical purposes, which does not include the giving of drugs to addicts to satisfy their craving. The penalties for the violation of this act are very severe.

Within the last few years the provincial governments of Alberta, Manitoba and Nova Scotia have enacted a special legislation requiring the compulsory treatment of all existing drug habitués. In 1916 Ontario enacted legislation for the care of habitual alcoholics, and included in this act drug addicts.

MEDICAL ASPECT.—Addicts can be divided into four classes on the basis of their source of supply: (a) opium smokers; (b) medical cases; (c) economic addicts (those who are able to continue their occupation and buy drugs; (d) under-world addicts.

A drug addict is a person who has acquired as a result of continued use an uncontrollable craving for a drug, and in whom the withdrawal of the drug produces a definite set of symptoms. Addiction simulates a disease in that it has distressing symptoms and often reduces the habitué to the point of collapse but it is probably more accurately classified as an intoxication or in some cases as a down right vice.

I wish in this paper to report on a hundred consecutive cases of drug addiction which have come under my care at the Burwash Institution. These cases, let me point out, are not representative of the whole narcotic problem, but rather, examples of certain phases.

ANALYSIS OF 100 ADDICTS

According to Age of Beginning Drugs, Present Age, Number of Years Using, etc.

<i>Age at Beginning Use of Drugs</i>	<i>Present Age</i>	<i>Number of Years Using Drugs</i>	<i>Source of Drugs</i>
Under 20.....30	Under 20.....0	Under 1..... 4	Drug Ring...12
20-25.....54	20-25.....12	1-3.....10	Pedlars.....72
26-30.....11	26-30.....23	4-6.....23	Doctors.....14
31-40..... 4	31-40.....46	7-10.....29	Customs.... 2
Over 40..... 1	Over 40.....19	11-20.....25	
		Over 20..... 9	

<i>Times Habit Broken Voluntarily</i>	<i>Times Habit Broken</i>	<i>Reasons for Using</i>	<i>First Drug Used</i>
0.....48	1.....20	Prolonged Med.	Morphin...34
1.....25	2.....13	Treatment.. 2	Cocaine...39
2.....18	3.....19	Relief..... 9	Heroin....11
3..... 7	4.....15	Curiosity...30	Opium....16
4 and over... 2	5.....11	Association..59	
	6.....22		

<i>Race or Place of Birth</i>	<i>Venereal Disease</i>	<i>Education</i>	<i>Working or not</i>
Chinese.....11	V.D.G.....29	None.....2	Working.....35
Jew.....3	V.D.S.....20	Primary.....72	Not Working...65
Coloured.....5	V.D.G. & V.D.S...5	Secondary...23	
American.....5	Neither.....46	University...3	<i>Criminal Standing</i>
British Isles.....9			Criminal first...30
British Canadian..59			Addict first....70
French Canadian..8			

ETIOLOGY.—The cause of addiction is influenced by many factors. Prolonged medical treatment caused 2% of our cases; self-administration for relief of distress, 9%; curiosity, bravado, etc., 30% associates and influence of others, 59%.

The age incidence shows that 30% of our cases started under the age of twenty, some beginning as young as twelve, and 84% began under the age of twenty-five. Hence careful and proper supervision of adolescents would prove a great preventive factor.

The tremendous profits made by the trafficker is an important factor. These unscrupulous people often induce boys and girls to use drugs in order to increase their business. Several jockeys and stable boys have told me that they were first given drugs by horse trainers for whom they worked, until they became addicted. Their pay then came very irregularly or was cut off since they were now absolute slaves to their employer. The trafficker buys his supply by the ounce, usually in cubes, resembling sugar cubes, grind these up, adulterates the powder with lactose, and puts it up in "decks". One ounce of drug makes 100 to 150 "decks" which resemble in size and shape a Seidlitz powder. The paper used is usually waxed. These decks are given out in 10's and 20's to addict pedlars, who sell them in the alleys, poolrooms, parks and "hangouts," at one to two dollars a deck. Our average case requires one to three decks per day.

It is the ambition of many a poor street addict to get a business connection to sell for one of these traffickers, and in this way make certain of his own requirements, for every addict lives in constant dread of being cut off. In some cases the man who sells for the trafficker is not an addict in the beginning, but by handling and association soon becomes a convert. There are three such cases in the series I am reporting. Drug addicts themselves breed more addicts either because they like to see others "happy" or else because the new recruit may be a useful friend in time of a drug famine, or a "drug panic" as it is called.

Habitual criminals by their associations in "hangouts" and jails, learn of the "stuff" and are anxious to try it out. Thirty per cent. of our cases were criminals before they became addicted. This, however, brings us to one of the pathetic results of addiction for 70 per cent. of our patients began their criminal record as a direct result of drugs. The high cost of "living," one to

five dollars per day for drugs was a factor necessitating crime in most cases.

Education as a factor is worth considering: 2% had no education; 72% had primary education; 23% had some secondary education; 3% reached University. Occupation is often responsible. People who "work on their nerve" frequently feel the need of a sedative. Race horse hands, circus and show people, salesmen and chauffeurs, are all well represented. 11% of our cases were Chinese; 5% Negroes; 3% Jews; 9% British born; 8% French Canadians; 59% Canadians of English speaking extraction. Only 3 of our cases were suffering from a diseased or painful condition which might have been a factor in their downfall.

CLINICAL PICTURE.—The clinical picture of drug addiction varies somewhat with the drug used. Opium smoking which constitutes 12% of our cases, produces a dryness of the skin, loss of weight, impaired physical activity, irritability, and states of depression and exaltation. (Prepared opium for smoking is stuck on bits of cardboard, wrapped in wax paper and sold for 50 cents a card. A card consists of 2-7 funns of opium. A funn makes about five average smoking pills, and is a Chinese unit. Chinamen prefer to get their own raw opium, and to prepare it by the various processes themselves). Heroin and morphine addiction which constitutes 16 of the cases, produces loss of appetite, flesh, and strength, disturbances of digestion, anemia, restlessness, irritability, tremour, insomnia, states of depression and exaltation, impaired judgment loss of moral sense and will-power, so that these victims are cheats and liars, capable of any baseness or deceit, particularly on matters relating to drugs. Heroin is the more malignant. Notwithstanding all this an addict "lit" on morphine or heroin is usually more alert mentally than normally, and is quite a responsible person.

Cocain which constitutes 1% of the cases, produces most of the above symptoms of degeneration, but in addition its victims are unable to keep occupied at any set activity, they are excessively exalted, suffer from delusions, and hallucinations often to the extent of committing murder. An addict intoxicated with cocain is not a responsible person. A habitué once told me that when "lit" on "C" he frequently saw a policeman and finally became used to it. When he was eventually arrested, he was not alarmed at the time, for he felt sure it was only his hallucination.

Seventy-one per cent. of our addicts use mixtures of morphine and cocain. (The purpose of this is to derive the utmost pleasure possible out of the "shot", it is called a "speedball," and its effect, which is tremendously exalting, is known as the "leaps"). This combination method ruins its victims faster and more completely than any of the others. For these people the world holds only one thing, and that is drugs. They are unable to carry on any kind of work, deteriorate very rapidly, physically and mentally, forget to eat, and seem to be concerned only with keeping the balance of cocain and morphine in their system, by injecting first one, and then the other, or both together. It is a well

known fact among drug addicts that these two drugs counter-balance each other, and that an overdose of one can be corrected by proper injection of the other. Such habitués lead a hand to mouth existence, let each day look after itself, and are satisfied if they can "barely get by". They are human skeletons, careless about their dress, habits and persons, and in most instances, look the part of confirmed "bums" or criminals. Their appetite which is poor at best shows a marked preference for sweets, pastry, cakes, chocolates and fruit.

PATHOLOGY.—The pathology of the condition appears to be the production of an antibody, within the human frame, which neutralizes the drug when injected. This anti-body seems to have a deleterious effect on the habitué, in so far as his normal functions are upset, and the central nervous system is so affected that it is doubtful, whether a confirmed addict ever again regains his former mental capacity. This is a certainty in so far as drugs are concerned.

When drugs are withheld the secretory glands become activated, perspiration pours out. The amount of urine is increased, the liver pours out bile in amazing quantities, which is vomited up, and I have noticed in three cases a temporary hyperplasia of the thyroid. Whether this abnormal secretion is nature's attempt to neutralize and eliminate some undesirable anti-body, or is pent up activity, bursting forth after an inhibitory influence has been withdrawn, is still an open question. In any case all these activities fail to produce any immunity to the condition, the individual after treatment, is more susceptible to a second addiction. It requires daily injection of a half grain morphine, for 3 or 4 weeks to produce an addict, but only three or four injections even at intervals, cause an addict to relapse. This question of establishing immunity to addiction is a splendid research field for at present human beings possess none of it. Repeated injections lead to increased tolerance, till upwards of 100 grains a day can be taken. This tolerance is lost after a cure. We have had two of our addicts after release, start in with their former dose and die as a result of it. Over-dosing with morphine is best treated with injections of cocain, and vice versa.

Mental changes are most marked in emotion and will-power and respect for fellow beings, or established society is gone. The first injections of morphine are soothing to mental and physical distress, and create a felling of well being. After a habit is acquired the patient must take his daily dose to feel normal, and must take an additional amount to get the pleasing effect.

COMPLICATIONS.—Abscesses and ulceration which are common, are the result of administering drugs with unsterile equipment, through the clothing, or by making a hole in the skin with a safety pin, and injecting the drug with an eye dropper. Injections of "Yen Shee", particularly the scrapings of opium pipes, produce fearful abscesses. Thrombosis is often the fate of the addict who injects directly into the veins. He is said to have a vein habit, and is called a "straight line shooter". Recently we had a case in which the

left leg was double the circumference of the right, due to thrombosis of practically every superficial vein of the limb. Self-mutilation is common in cocaineism or in addicts with a combined habit. They will make deep gashes in the flesh with a safety razor blade, and dust the powder into the gaping wound. This is seen in addicts under treatment when it is done in an attempt to procure sympathy and drugs. We have had a patient put Gillett's Lye on his left arm, cover it with a penny, and wrap it up with a bandage. In ten hours this had produced a blister and a large area of inflammation, which later developed into an ulcer, about 4 inches in diameter.

Venereal disease is very prevalent. Addicts go about in groups, each of which has its female members. Women habitués, in many cases, make the money to buy their drugs by prostitution, and are often exploited by two or three male addict friends. It is true that addicts have little sexual desire, yet with such women they readily become infected. Twenty-nine per cent. of our cases had evidence of gonorrhoea, and 20% had syphilis; 5% had both. This makes 44% of our addicts cases of venereal disease. Tuberculosis and Bright's disease are often complications.

The withdrawal symptoms of opiates begin a few hours after the last dose, reach a climax in 24 to 48 hours and disappear in 6 to 8 days. They consist of vague uneasiness, a sense of depression, sneezing, yawning, constant sweating, lachrimation, impaired vision, excessive mucous secretion, vomiting of bile, cramps in the abdomen, constipation or diarrhoea, indefinite pains, uncontrollable restlessness, insomnia, marked pallor of the face, with a drawn expression about the mouth and eyes, and cardiac derangements. Cocaine differs in that the addict has a craving but has almost none of the distressing symptoms.

TREATMENT.—*The ambulatory method* consists of gradual reduction of the drug, the patient remaining at large. This method, although still recommended in Great Britain, has been condemned here. Its results have made it clear that it is almost an impossibility for the general practitioner to treat addiction.

The gradual reduction method consists of gradually reducing the amount administered over a period of 4 to 6 weeks,—the patient being kept under constant observation. This method, though free from the more severe withdrawal symptoms, does not get the co-operation of the patient. He attempts by every conceivable means to procure more drugs. How to prevent this is a real problem in sanatoria, hospitals, and even in penal institutions. The attendants, other patients, visitors, and correspondence, all require the most guarded supervision. In some cases the patient himself comes well prepared for the long siege. To such an extent is this true that we have found it necessary to make routine rectal examinations, as the rectum proves to be a favourite hiding place, and on several occasions, we have been successful in relieving the addict of his supply. Then too, the addict knowing that by exaggerating his symptoms, he

can sometimes procure an additional or an increased amount, puts up a real fight for the weeks he is under treatment.

The rapid withdrawal method consists of giving rapidly reducing quantities of morphine over an interval of 3 to 4 days. We have used this method in three cases, complicated by cardiac and pulmonary lesions.

The method of abrupt withdrawal or "cold turkey" is our treatment of choice. The mental attitude of the patient is much better than in gradual withdrawal. He soon realizes that exaggeration of his symptoms accomplishes nothing, settles down, and gives his best co-operation. This treatment consists of the sudden and complete withdrawal of all narcotics, the patient being put to bed and given 20 minims of Tr. Belladonna 3 times a day, for 6 to 8 days. This tends to check the excessive secretion which is distressing. He is placed in a warm continuous bath for half an hour, twice a day. The bath is followed immediately by a general massage which usually gives him some relief from the restlessness and twitching. For insomnia we use paraldehyde, drams two or three, at 9 p.m. The vomiting is controlled by a mixture containing cerium oxalate, bismuth, soda bicarbonate and peppermint. Extreme cases get gastric lavage with soda bicarbonate solution. The heart symptoms are treated by digitalis. This treatment is usually sufficient. Our patients are over their initial stage in 8 to 10 days, have a ravenous appetite, (which is known as "chuck horse"), and consume appalling quantities of food. General tonics, substantial food, plenty of fresh air, and occupational therapy, rapidly restore addicts to normal physical condition. They begin light work in 3 to 5 weeks, and are in fine physical condition in three months, having gained 15 to 60 lbs. It takes 9 months to a year for the addict to be re-established mentally, the craving persists a long time after the body is built up.

The hyoscine treatment consists of giving massive doses of hyoscine for 3 or 4 days. The addict goes into a sort of delirium, or twilight sleep, and wakes up without further withdrawal symptoms. Scopolamine is similarly used. Men who have taken this treatment tell me that they are "actually crazy" for 3 or 4 days, and that the craving returns within a week.

PROGNOSIS.—The word "cure" with respect to addicts has two meanings: 1. the addict whose condition is such that he has no longer any symptoms and physical condition is re-established; 2. the treated addict who has the desire, and will-power to withstand the lure of the drug, and has succeeded in doing so for a period of years.

Eighty per cent. of our cases have broken previous habits. Many of them will tell you they can get more pleasure from an ounce of morphine than from anything else, and that they intend to return to it. However, the number of new addicts is comparatively few. Only 4% of our cases had started within a year previous to their conviction. We have in our Institution now some habitual criminals who once used drugs, but who, in the course of two or three years, did not return to it, but have been convicted for other crimes.

CONCLUSION.—In conclusion I will say that the drug addict is cured only only if he has the will-power and desire to be cured. How can we create this mental state?

The control of production and manufacture of narcotics by international agreement is improbable, hence it behoves us to use the machine we have at our disposal. Our present Federal legislation along with Provincial legislation requiring compulsory treatment of all known addicts, will go a long way to eradicate this evil—but will require the conscientious co-operation of the medical profession. This co-operation will be forthcoming, I am sure, because the profession now realizes what a service it can be to the public health in general, and to the younger generation in particular, by providing proper care and treatment for these poor, misguided, unfortunates.

THE MEDICAL HEALTH OFFICER

"Of all the appointments made by a Municipal or Town Council none are of more importance than that of the Medical Health Officer. This importance is not reflected in any way in the salary attached to the position, usually about \$100.00 a year. In the protection of the members of the community from disease and death, his value to the community may represent thousands not hundreds of dollars. One life saved from infectious disease, quite apart from other considerations, will pay the pittance of his salary, for the whole period of his working life.

Unfortunately, most Medical Health Officers seem incapable of telling their Councils in an adequate way of the work which they have done and which, without ostentation and display, they are continually doing. And the Councils, failing to appreciate the importance of the work, place little value upon it, since he who does it apparently does not do so, and vote him into the position again at the same old salary, \$100.00 per year."—From "*Public Health Notes*," Department of Health, Nova Scotia.

THE RAT AND WHAT IT MEANS TO CANADA

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Division of Sanitation Dept. of Public Health Saskatchewan

FOR many years the brown rat has steadily but surely been invading not only this province but the Dominion of Canada. The rat population is denser in the Eastern Provinces with their many large seaports and where shipping from all parts of the world arrives affording free transportation for these rodents into the Dominion. This immigration is also taking place in the Province of British Columbia at the Pacific ports.

It would appear that little or no action has been taken by the Provincial or by the Dominion Governments to make an investigation into the situation, to put into force any rat extermination laws or to consider the best means of starting a campaign against the rat, similar to that carried on by the older countries. It is well known that once the rat gets a strong hold in any country it is an impossibility to drive him out completely.

Saskatchewan being situated in the middle of the Dominion, it is not only open on the east side, but also on the west and south borders to rats which enter the province by natural migration and by means of railway box cars carrying general merchandise from the States and from our own manufacturing and distributing centres in the east and west. From close observation it may be said that the time of the rat movement generally takes place from late spring to the fall and especially during the harvesting of the grain on each side of the boundary.

The main object of this article is to endeavour to awaken the interest of the people of this Province and of the Dominion to a situation, which, in the near future is going to develop into one of serious proportions not only from the viewpoint of destruction of merchandise and property but also from the public health aspect if the public are to be protected from plague and other forms of rat-borne disease.

The question that presents itself to all serious thinking persons is "Are we, as custodians for the present of this great country, justified in handing to those who will follow us in years to come a legacy of a land infested with these dangerous rodents, or should we not now take such steps to try and prevent the invasion as will justify us in the eyes of those who will follow?"

The natural reply would be that it is our duty to put forward every effort that we are capable of, to try and destroy the menace, and if we are unable to do so to at least show that we were not apathetic to the trust which was ours.

The brown rat or Norwegian rat as it is sometimes called, formerly in-

habited Central Asia but for some reason migrated in the eighteenth century to European Russia where we are told it was first noticed in 1727. In 1730 it was found to have travelled to the Baltic States, and from here it migrated to Great Britain, where it exterminated the black rat, which was a native of that country. In 1750 we hear of the brown rat being seen in Paris. In time, as trade developed, they gradually spread over Europe and as commerce grew they found their way to the States about 1775, since which time they have steadily increased until to-day they may be said to overrun the country. So that in about 50 years they had spread over two continents.

So far as this Province is concerned the first authentic notification we have of their presence is from Gainsborough in 1912, where they were supposed to have come in either by means of a railway box car or to have crossed over in the summer from Manitoba where they were known to have been for some time prior to this date. From this point they have steadily spread north, and west, till at the present time they are known to be within thirty miles of the City of Regina. This is an approximate advance of 110 miles in 15 years or an average advance of 7.33 miles per year.

The brain of the rat is known to be highly developed due in a great measure to the constant persecution which the rat has been subjected to for nearly three centuries at the hand of man, as well as by its natural enemies. This has all tended to quicken the brain to enable the rat to live, with the consequence that it has become highly intelligent, sagacious, cunning and resourceful. It is very brave when cornered and will put up a game fight for the protection of its young, or its life.

To successfully trap these rodents, man has to match his cunning against theirs and has to be resourceful and scheming to find out and adopt new methods for their destruction. The simpler the methods employed, the surer is the chance of destroying the rat.

In this province the muskrat has often been mistaken for the brown rat and vice versa, but on close inspection it will be seen that they differ in many points. For instance in the head; this in the brown rat is long and pointed, whilst in the muskrat it is short and blunt, the ears of the brown rat are set further back than those of the muskrat, the colour of the rat is a blackish gray due to the long black hairs that grow in amongst the shorter fur, whilst that of the muskrat is of a reddish brown, its body is longer than the muskrat being about nine inches for a full grown specimen. Especially is there a difference in the tail, which in the rat is scaly with black hairs and of a very dull grey colour, the muskrat's tail being flattish on both sides and having reddish hair. The average length of tail for a brown rat when grown is about seven inches. The rat is a good swimmer and climber. One remarkable feature about the rat is that it is able to descend rough surfaces as well as being able to climb, by turning its back feet outwards thereby hooking on to rough surfaces with its claws.

The rat raises three to four litters in a year and as the females are able to breed at the age of three months it will be readily seen that the rat increases at a very rapid pace.

If a pair of rats, left unmolested for a period of three years, were protected against their enemies and had no deaths, we would find that their numbers would have increased to 359,709,482.

The rat is essentially a nocturnal animal and does most of its foraging at night, lying in hiding during the daytime, although it may be seen in quiet locations where it is not likely to be disturbed. Especially is this so, in stables, nuisance grounds, and around slaughter houses.

A short survey of what is being done in other countries to combat the rat plague may be of interest as well as an estimate of the damage to property per head of the population.

During 1907 to 1910 rats became so numerous in Denmark that the Government passed the first Rat Extermination Act, which provided for a bounty of 3 Ore (or one cent) per head for every rat killed. In 1915 a second act was passed and again in 1921 a third Rat Extermination Act was passed. Under these three acts, nearly four million rats were exterminated.

Under the second act bacteria culture known as Ratin was used by some municipalities as well as other poisons. The passing of this act accounted for about one and one half million rats with an expenditure of 675,000 krona or at a cost in Canadian money of \$168,750, this is taking the krona at 25c or at a cost of \$56,275 per year, over a three year period.

It is also interesting to note that the U.S.A. Public Health Service has estimated that there is one rat for every human being in the States. This statement coincides with that made by Great Britain, and in Ireland by the Incorporated Society for the destruction of vermin, also with the authoritative figures for Denmark, France and Germany.

The annual upkeep per rat was computed by the same authority at \$1.80 in Great Britain, \$1.20 in Denmark, and \$1.00 in France.

From Rat Bulletins received from the States the yearly damage estimated to be done by rats is put down at \$200,000,000.

Assuming that our entire Province becomes rat infested the cost of annual destruction of property and merchandise will be around \$1,500,000 per year, whilst for the whole Dominion, taking the population at nine millions, the annual cost would be \$16,425,000.

Apart from the general destruction of property there is no doubt that rats have been responsible for many mysterious fires at different times both in our own Province and elsewhere, by causing short circuits in electric wiring through gnawing through partitions and beams on which the wiring has been fastened, also by gnawing at boxes of matches. This has resulted not only in loss of property but unfortunately in loss of life.

And now we come to the other phase of the question as to why they should

be destroyed. Through the rat, bubonic, pneumonic, and septicemic plague have been conveyed to man.

These rodents are held responsible for the death of 25,000,000 people in Europe by means of plague or "Black Death" as it was called. Whilst even in modern days with all the precautions taken to provide sanitation and healthy conditions, plague is still prevalent in India, Asia, and Africa. Within recent years Los Angeles suffered an epidemic of pneumonic plague, in which thirty people died in ten days whilst many others had very narrow escapes from a like fate.

The Saskatchewan Public Health Department has for the last three years taken an active interest in the matter and from time to time sent out inquiries in the form of questionnaires to the cities, towns, and villages as to the presence of these rodents and as to whether the local authorities are taking steps to exterminate the rat. This year it is noticeable that quite a number of towns and villages have given bounties for tails brought in, ranging from 5c to 25c each and whilst this is a step in the right direction it does not go far enough as it is only in a few of the municipalities that this is being done with the result that as the rat finds itself being persecuted it will either remove itself from that district to another or else will become more wary and therefore become harder to trap.

The Department has issued a Bulletin which gives the history of the rat in an abbreviated form and also considerable information as to the best baits to use and a description of traps, suitable both for use in urban as well as country districts. These Bulletins are freely distributed not only to the cities, towns, and villages but are also circulated at the Provincial Fairs held in the summer in the larger urban centres.

At the last sitting of the Provincial Legislature the Rural Municipalities Act was so amended as to authorize all rural municipalities to give a bounty for rats and it is hoped that at the next Legislature the Acts governing cities, towns, and villages will be similarly amended.

In conclusion it may be said that the City of Winnipeg, so far as is known, is the only city of the Western Provinces that has taken active steps to combat the rat and they have issued a pamphlet advising the public of what is to be done in the event of the householder finding rats on the premises. The city also issues a poison free of charge to any one who cares to apply for it.

Whilst all this is satisfactory it is felt that without the co-operation of the other Provinces as well as of the Dominion Government no headway of a substantial nature can be made.

It is suggested that the Dominion Government could with advantage take the first step in rat extermination and that this could be followed by the Provinces who might authorize the various municipalities to set aside one week in the year similar to the "clean-up week" for cities, towns, and villages, when the public would be called upon to use every endeavour to exterminate the rat.

EDITORIALS

FEDERAL RESPONSIBILITY AND HEALTH

The physical fitness of the individuals who make up our nation is a matter of great national importance. Ability to work, capacity for production, enjoyment of life, are all bound up in the health of the individual. The quality of our people is more important than their numerical strength. In time of peace as in time of war, it is man-power that is the deciding factor. Man-power is not expressed in the totals of the census tables, but in the number of physically and mentally fit persons.

The Government of Canada for many years interpreted the British North America Act as placing the responsibility for health conditions within our borders directly upon the provinces. Whether this is an accurate interpretation of the Act is open to question; some claim that legally no such interpretation can be made.

Leaving aside the question as to legal responsibility, there seems to be every common-sense, practical reason why the Dominion Government should take an active interest in and assume responsibilities for the health of the Canadian people. This does not mean that provincial governments should be relieved of responsibility, but rather that they should be stimulated, encouraged and assisted.

What can be done is illustrated in the venereal disease work. There is no question but that the Dominion grant to the provinces, the latter contributing an equal amount, resulted in the rapid development of an efficient venereal disease programme throughout Canada, which likely would never have come about, certainly not for many years, without the assistance of the Dominion Government.

At the present time and in the past, the Dominion Government has occupied itself with the live-stock and various phases of agricultural interests of the country; in roads, in housing and many other activities. Why should the health of the Canadian citizen himself be the one object that the Dominion Government feels to be outside its responsibility?

We believe that the Dominion Government should, through the Provincial Governments, subsidize health activities, if such are properly conducted. If county health units are the best means of supplying rural health needs, the Dominion Government might very well subsidize such units. The Dominion Government might be sure of the approval of every Canadian for assistance given provincial programmes aimed at reducing maternal mortality.

As long as any large number of Canadians suffer and die from preventable diseases, as long as any large numbers of Canadians are not physically fit, the

Government of Canada has a duty in assisting to remedy such conditions. Provincial rights, liberties and responsibilities will never be interfered with as long as the Dominion Government does its health work through the Provincial Health Departments, which is the procedure we advocate.

A VALUABLE NEW SERVICE

THE Canadian Medical Association announces the inauguration of a Department of Hospital Service in connection with the work of a Association. The services of a full-time secretary for this new Department have been procured and work is to commence at once. Made possible because of a generous grant from the Sun Life Assurance Company, the advice and help of this Department will be offered free to Canadian hospitals. It is hoped to build up a hospital library at the headquarters of the Canadian Medical Association as well as a Bureau of Information dealing with all phases of hospitalization.

There are many phases of this important problem which will deserve consideration by this new Department of the Canadian Medical Association and doubtless obvious questions of equipment, staff organizations, and purchasing, will receive just attention. It might be well at this time, however, to call attention to the fact that as the public attitude towards the care of the sick and its relationship to public health measures changes so must our attitude towards hospitals change. In the future, important as is the problem of the care of the sick, still more significant is the question of the prevention of sickness. We must consider in the future how many of our hospital beds are filled by persons who are ill because of our failure to prevent sickness, what is the cost of such neglect not only to hospital boards and to municipalities but to families unnecessarily deprived of breadwinners, to industry unnecessarily crippled by the withdrawal of workers.

Such problems as these should attract the attention of the medical profession and of citizens generally and it would seem that hospital authorities in particular should give some study to the question because there is no doubt that in years to come the hospital must be a health centre as much as a disease treatment centre, a means for educating citizens that they may keep well, perhaps a means for making effective the development of a really effective periodic health examination scheme on a nation-wide scale.

The Canadian Medical Association has a great opportunity both now and in the future in this new Department. We congratulate the Association on their foresight and the Sun Life Assurance Company on a fine gift which makes possible the opening up of a plan fraught with great possibilities.

EPIDEMIOLOGY AND VITAL STATISTICS

A. C. JOST, M.D. and NEIL E. MCKINNON, M.B.

PROVINCIAL BOARD OF HEALTH REPORT, BRITISH COLUMBIA

The Thirty-first Report of the Provincial Board of Health including the Sixteenth report of Medical Inspection of Schools, year ending June 30th, 1927, and the Fifty-fifth Report of the Vital Statistics Department, year ending December 31st, 1926, have been received. In this excellent report, Dr. H. E. Young, Provincial Health Officer, reviews the year's progress noting particularly the establishment of three full-time health units, tuberculosis survey work, venereal disease clinics, the work of the four diagnostic laboratories, and the extension of public health nursing. Smallpox and poliomyelitis, on account of epidemic prevalence, are given special mention.

The following items are taken from this report.

Tuberculosis Incidence.—"According to the census of 1921, 20.1 per cent. of the total Indian, 59.5 per cent. of the total Chinese, and 94.5 per cent. of the total Japanese population of the whole Dominion were located in the Province of British Columbia. An analysis of the returns of deaths from tuberculosis shows that in the year 1926 these three races alone accounted for 232 deaths out of 532, or 44.6 per cent. of all deaths from tuberculosis in the Province. That the high rate of death from tuberculosis among these three races has a marked effect on the rate for the whole Province is evidenced by the

following table of tuberculosis death rates for different population groups;—

Rate per 100,000 Japanese population	147
Rate per 100,000 Chinese population	255
Rate per 100,000 Indian population	596
Rate per 100,000 province excluding the above races	59
Rate per 100,000 whole province	93

The *infant mortality rate* for British Columbia for the years 1922-1926 inclusive, was 68.1, 66.8, 56.7, 55, 58.4 per 1000 living births.

The *maternal mortality rate* for the past five years shows no appreciable change. The rates from 1922 to 1926 inclusive, were 6.2, 6.3, 6.8, 5.9, 6.4 per 1,000 living births.

Cancer, as a reported cause of death in British Columbia, has increased from 82-84 per 100,000 for the years 1922-1925 to 92 per 100,000 in 1926.

Convalescent serum for Poliomyelitis.—"Immediately following the outbreak, the medical profession was circularized and the addresses of the patients and information as to the date of attack and the time of development of paralysis was asked for. The medical profession co-operated in this by giving us the names and addresses, and a letter was sent to the parents asking for permission to obtain blood. We have had a very good response indeed, and our laboratories are collecting serum which we will have on hand should another outbreak occur within the next year."

GENERAL SUMMARY OF POPULATION, BIRTHS AND DEATHS, BY PROVINCES, 1926

Item	Canada*	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.
Estimated population in thousands	9,378	87	540	407	2,562	3,146	639**	821**	608**	568
Living births	282,205	1,751	10,931	10,297	82,165	67,482	14,660	20,557	14,456	9,906
<i>Birth rate per 1000 population</i>	24.8	20.1	20.2	25.3	32.1	21.5	22.9	25.0	23.8	17.4
Still births	7,091	36	355	240	1,940	2,811	434	551	418	306
<i>Per cent. of total births</i>	3.0	2.0	3.1	2.3	2.3	4.0	2.9	2.6	2.8	3.0
Deaths (exclusive of stillbirths)	107,318	877	6,355	4,984	37,251	35,890	5,335	6,041	5,159	5,426
<i>Death rate per 1000 population</i>	11.4	10.1	11.8	12.2	14.5	11.4	8.3	7.4	8.5	9.6
Deaths of Children under 1 year (exclusive of stillbirths)	23,671	121	881	1,095	11,666	5,295	1,122	1,678	1,233	580
<i>Infant Mortality Rate per 1000 living births</i>	101.9	69.1	80.6	106.3	142.0	78.5	76.5	81.6	85.3	58.6
Deaths from Puerperal causes	1,314	7	51	66	427	381	87	145	85	65
<i>Maternal Mortality Rate per 1000 living births</i> ..	5.7	4.0	4.7	6.4	5.2	5.6	5.9	7.1	5.9	6.6

*Yukon and Northwest Territories with a population of 12,145 in 1921 are not included.

**Population enumerated in Census of Prairie Provinces, 1926, to nearest thousand.

This summary table for Canada, 1926, is taken from the Preliminary Report—Vital Statistics—Canada, 1926, issued by the Dominion Bureau of Statistics.

ACCURACY OF BIRTH REPORTING IN
NOVA SCOTIA

There are a number of ways in which the accuracy of birth reporting may be checked up. A number of tests have recently been made in the Vital Statistics Department of Nova Scotia. Deaths of those born since the Registration Act went into effect were noted and an effort was made to see how many of these had been registered at birth. One such series was made of persons born soon after the law went into effect. A second included those born during the past four years. The purpose of so selecting the lists was to endeavour to see if, during the interval, there had been improvement or the reverse. The results were almost identical in the tests, in one there being 87 births registered out of 110 individuals who died, and in the other 81 out of 100. In each list there were a number of registrations which could not wholly be identified or marked, the name not being fully given and therefore the identification being incomplete. Apparently registration of the birth could not be found in about 15% of the cases. Every effort is being made to cut down that 15% and the assistance of the practitioners toward that end is earnestly requested.

NATIONAL HEALTH INSURANCE
(England and Wales)

In the report of the British Ministry of Health for 1926, is found the information that, in England and

Wales, out of a total population of 39,067,000 there were insured under the National Insurance Act of 1911, 14,102,000 wage earners, men and women. This figure represents more than one third of the entire population. Under this act the following expenditures were made, namely, for medical services £6,592,900, for medicines and appliances £2,028,738, for sickness and disablement benefits £16,675,000. The total expenditures were £25,296,638. For the medical service 14,432 insurance practitioners were required. The average number of insured persons on a doctor's list was 946.

TYPHOID FEVER IN STELLARTON, N.S.

The recent outbreak of Typhoid Fever in Stellarton again calls attention to the necessity of constant and careful supervision of all community water supplies. The supply of that town was a river which was in danger at any time of becoming polluted. This danger had a number of times been called to the attention of the authorities. Finally the conditions became suitable, an unusual rainfall swept infected material into the water unprotected by filtration or by chlorination and Typhoid Fever broke out. Temporary chlorination was at once arranged for and no new cases have for some time been reported. Chlorination would not only have prevented the outbreak had it been used in time but the menace of the "carrier" might have been escaped.

FOOD AND DRUGS

H. M. Lancaster, B.A.Sc., and A. R. B. Richmond, V.S., B.V.Sc.

UNDERGROUND ICE STORAGE

Ice is of economic importance on every dairy farm. It enables milk and cream to be produced during the summer months and marketed in a fresh condition. Excepting where there is ample supply of cold running water, ice should be stored on dairy farms for summer use. It is a necessity, not a luxury.

The general practice is to store ice in a suitably built house above ground. Some recent tests made by the South Dakota State College in storing ice under different methods would indicate that storing above ground is not the most economical so far as conserving ice supply is concerned. Two lots of 15 tons of ice were stored, one in a 12×12 foot pile on top of the ground, and the other in a 12×12 foot pit in the ground. The tops and sides of the ice piles were covered with a layer of straw, at least a foot in depth, and boards were used to prevent rain penetrating to the stored ice. About three times as much usable ice was obtained from the ground storage ice as from surface storage.

The results of these tests show that straw is not a first-class material for insulation. Sawdust is more effective. However, where sawdust is not available, flax straw or any other kind of straw may be used. When flax straw was used, about 30 per cent. of the total amount stored was usable. From ice stored in sawdust, 40 per

cent. or more was recovered for cooling purposes.

The main result of the experiment was that the basement plan ice house is the best for storing ice. Such an ice house can be built at relatively small cost. It is recommended that ice houses built wholly or partially underground should be at least 14 feet square if the ice is to keep throughout the summer regardless of the amount of ice needed and used.

A survey of many ice houses in use made by officials of the South Dakota College indicated that unless sawdust or an excellent insulating material is used the 12×12 foot house is too small for keeping ice through a long season. The larger the block of ice the better it will keep. The house should be square. If one dimension is narrow, the ice will not keep much better than its narrowest dimension. To a considerable extent, this holds true as regards the depth to which the ice is packed.

THOROUGH MILKING ESSENTIAL

In an experiment to determine the value of milk, taken at different periods during the ten minutes that the cow was being relieved of her half-day production, the following interesting figures were obtained at the Ontario Agricultural College.

The first three pounds milked out tested less than one per cent. of but-

ter fat; the next four pounds tested above 2.5 per cent.; the third portion, weighing over four pounds, tested better than 5.5 per cent.; while the last portion milked, weighing nearly six pounds, tested over 9 per cent. butter fat. A half-teacup of milk

left in the udder each time of milking would mean a loss of nearly a dollar a month per cow in butter fat. Furthermore, milk left in the udder will soon bring about dryness. Thorough milking is essential to success in dairying.

PUBLIC HEALTH NURSING

RUBY M. SIMPSON, REG.N. AND FLORENCE H. M. EMORY, REG.N.

THE twentieth century has witnessed the advent of a new community worker. Her task is to help in bringing to the urban and rural dweller, alike, knowledge gained through medical research and discovery. That worker is the public health nurse. Originating in our large centres public health nursing has grown until the influence of approximately twelve hundred health nurses is felt, in varying degrees, in every province of our dominion. A welcome development of recent date is the establishment of the county health unit. In the vast areas of our sparsely populated country such a policy should permit of wide expansion.

Since Canadian tradition assumes that leadership in health work is vested in the public authority, it is not surprising that many nurses are employed by provincial and local departments of health and education. Rendering signal assistance are two national private organizations both of which employ the public health nurse—the Victorian Order of Nurses and the Canadian Red Cross Society.

Industry and social service departments of hospitals are also utilizing her services. Branches of work undertaken include the care of the sick in their homes on a visiting basis and preventive and educational work for various age groups in schools, clinics, homes and in industry. Wherever a community health need exists the public health nurse endeavours to meet that need through progressive, intelligent service. In some organizations a generalized plan is adopted combining two or more phases of work, in others a specialized service is given. That variety of effort, conditioned by local need, has characterized the growth of the newest branch of nursing is cause for gratitude.

Regardless of the plan of organization and the type of service rendered the function of this community worker is conceded to be health teaching. She assists the public health administrator in safeguarding the life and increasing the health of those for whose well-being he assumes responsibility. In discharging her duties

she has found a worthy ally in the social worker, the grade teacher and in lay groups existing for community betterment.

Through special training, through reading current and standard literature and through contact with other health workers, the public health nurse in Canada is attempting to meet the demands of a field at once attractive and exacting. She is increasingly aware that, though varied her approach, the ultimate test of achievement is an ability to generate in the individuals of her community an experimental knowledge of healthful living.

Public health nursing has been supported by organization within and without the profession. The Public Health Section of the Canadian Nurses' Association and the Public Health Nursing Section of the Canadian Public Health Association, afford opportunity for interchange of thought and experience. The newly created Public Health Nursing Department in this the official organ of the Canadian Public Health Association aims to bring to the attention of the reader new projects and significant events in the public health nursing field throughout the Dominion. Their relation to public work and to the nursing group will receive emphasis. In short, such a Department provides a medium for interpreting to others engaged in preventive activities both lay and professional, the successes and failures of the public health nurse. In a field where relationships are increasingly varied and complex and problems mayhap difficult of solution, the good-will and

sympathetic understanding fostered by this Department will be of material assistance to public health nursing and to the public health nurse as she endeavours to play the rôle of community health teacher.

MISS ELIZABETH G. FOX VISITS TORONTO

"THE Nursing and Medical Profession in a Changing World" was the subject of an able and timely address delivered at the annual meeting of District Five of the Registered Nurses' Association of Ontario. Miss Fox is widely known as the Director of Public Health Nursing Service of the American Red Cross.

She introduced her address with reference to the tremendous social, political, and educational upheaval of the present age. The medical and nursing professions were coming under the same spirit of unrest.

Speaking of the economic maladjustment of medical and nursing practice to the needs of the sick—Miss Fox pointed out the enormous sums spent for medical care in the United States including an investment of five billion dollars in hospitals, an outlay of three million daily for the maintenance of these hospitals, of another three million daily in doctors' bills and of approximately seven hundred million annually in drugs.

It has been alleged that the American public was being exploited by the medical and nursing professions and the hospitals. There was little foundation in fact for this charge generally speaking since nurses received an average income of approxi-

mately \$1500 a year and doctors from \$3000 to \$4000 a year, a remuneration which is not commensurate with the expense of their professional education. Moreover, the average daily cost for hospital care has been found to be approximately \$4.70 per bed.

On the other side of the picture, although the minimum budget for a family of four to live decently in the United States is variously estimated as between \$1800 and \$2100, the average income is approximately \$1200, while 98½ per cent. of the population earn less than \$5000 a year. Obviously the average family

is unable to pay for medical and nursing care at the prevailing rates.

Further statistics indicate that in the preventive field but a beginning has been made although the prevention of illness is the best way of cutting down the cost of illness.

Miss Fox made a stirring appeal to all nurses when she pleaded for an open mind, free from prejudice, false professional pride, the paralysis of dogma and the free and frank discussion of all problems between the laity and the professions. The exhilarating influence of her visit will remain with us. May she return at an early date!

INDUSTRIAL HYGIENE

F. G. PEDLEY, M.B., D.P.H. and J. G. CUNNINGHAM, B.A., M.B., D.P.H.

THE TREND OF OCCUPATIONAL MORTALITY IN THE UNITED STATES

DURING the past 20 years great changes have taken place in the mortality tables of the general population. So far in the U.S.A. it has been impossible to get occupational death rates that are reasonably reliable. The latest official publications are: The U.S. Census Mortality Experience for 1909 and the Metropolitan Life Insurance Mortality Experience for 1911-1913 inclusive.

But there is no certainty that the occupational classifications are accurate and the same applies to the mortality records of the N.Y. City Health Department for 1924. Accordingly an attempt has been made to study the proportionate mortality in individual occupations of deaths

from each disease to total deaths. This method has obvious fallacies from the point of view of comparison of one occupation with another since it does not follow that a higher proportionate death rate from, say tuberculosis in one occupation implies a higher incidence of tuberculosis since the gross death rate of that occupation might also be higher.

Despite the difficulty in getting authoritative figures and the incomparability of the different data available, the tables presented, based on the sources indicated above, show that our conception of industrial mortality is not in accord with the present facts.

Tuberculosis is no longer the leading cause of death among occupational workers but is surpassed by cardiac diseases.

It does not look as though the increase in cancer mortality were due to industrialisation since the increase is no greater among occupied persons than among the general population.

The increase in mortality from diseases of the heart is partly only relative due to the decrease in mortality from tuberculosis.

Mortality from tuberculosis and heart disease is gradually shifting to the later year periods.

Mortality from apoplexy, paralysis and chronic diseases of the kidneys shows very little change during the last ten years.—*Frank Pedley, Journal of Industrial Hygiene, IX, No. 11, Nov. 1927, pp. 475-482.*

THE PHYSIQUE OF WOMEN IN INDUSTRY

Physical measurements of a fair sample of women in industry gave the following classifications as a basis for a study of the optimum weight to be carried by women in industry:

Class I, girls of 14-16 years.

Average weight, 99 lbs.; height 61 inches; pull 165 lbs.; grip 53 lbs.; crush 44 lbs.

Class II, girls of 16-18 years.

Average weight 108 lbs.; height 62 inches; pull 180 lbs.; grip 58 lbs.; crush 50 lbs.

Class III—Women

Average weight 112 lbs.; height 62 inches; pull 187 lbs.; grip 59 lbs.; crush 51 lbs.

Conservative conclusions are that loads for continuous carriage should not exceed 40% of the body weight and loads for incidental or occasional lifts or carriages should not exceed

50% of the body weight. That is the average woman may be allowed to carry 45 lbs. and lift 55 lbs.

Children of 14-16 should not be asked to carry more than 25-30 lbs. and girls of 16-18 more than 40 lbs.

Where the load is a compact and easily handled one, not interfering materially with gait and balance, the weight might be increased for adults as much perhaps as 20% without straining. Also the ill effects of carriage of loads in excess of the optimal may be non-existent if the worker carries at her own rate of speed.

*Industrial Fatigue Research Board
Report No. 44, 1927*

THE RELATION OF ATMOSPHERIC CONDITIONS TO THE WORKING CAPACITY AND ACCIDENT RATE OF COAL MINERS

While it is usually considered that at high temperatures, efficiency of miners decreases, the extent of deterioration and the temperature at which it begins is unknown. Also, the current reports of efficiency in relation to temperature are contradictory.

The present study is the result of observations made in two adjacent collieries in England for a period of 5 months; the tests of efficiency are (a) number of rests taken by the men and (b) speed of work done (time taken to fill tubs).

138 men were watched for an average of 96 minutes each with the following results:

In air with wet Kata cooling power of 19 to 14, they rested 7 minutes an hour and tub-filling took 8 minutes.

In air with wet Kata cooling power of 7 to 5, they rested 22 minutes an hour and tub-filling took 9.6 minutes.

It was calculated that the rate of production was 41% less under the worst atmospheric conditions than under the best.

Accident rate also appears to be influenced by atmospheric conditions. Where the wet Kata cooling power

was 15.2, 11.3 and 10.2, the (modified) accident severity was 3.2, 4.8 and 4.9 respectively. The accident frequency varied in the same way. There was also reason to think that adverse atmospheric conditions caused reduction in the health of the miners.

Vernon & Bedford. Industrial Fatigue Research Board, Report No. 39, 1927.

NEWS OF NATIONAL VOLUNTARY HEALTH AGENCIES

JEAN E. BROWNE, REG.N.

CANADIAN SOCIAL HYGIENE COUNCIL

TO develop a race of men with clean minds and clean bodies to do great service for their nation is, in every country, one of the most important things that can possibly be undertaken."

This quotation from an address on social hygiene, delivered by His Excellency, Viscount Willingdon, at the last annual meeting of the Ottawa Social Hygiene Council is an effective summing-up of the aims of the Canadian Social Hygiene Council.

Commencing its activities with a direct frontal attack on the problems of venereal disease—a work which is still one of the most essential functions of the organization—the Council's activities, however, have steadily broadened.

It was soon abundantly obvious that the problems of venereal disease control and of eliminating this scourge as far as possible are inextricably in-

termingled with other mental, moral, social and physical health questions. Satisfactory progress against venereal disease was not possible, beyond a certain point, without giving attention to these allied problems.

The direct attack on venereal disease, therefore, led gradually but inevitably into the wider field of general social hygiene. Bad health conditions create pressing social problems and social problems create unsatisfactory health conditions.

To a large extent, both are preventable and one of the most effective means of dealing with the problems of prevention is through education.

The aim of the Canadian Social Hygiene Council, with its national, its provincial and its local organizations, is to provide educational facilities for the carrying on of this work.

This is being done, moreover, in close co-operation with official health bodies,—the Federal Department of

Health, the various provincial departments and individual health officers. The object is to support, with educational campaigns, the work which these health officials are seeking to carry out.

This is done through a variety of agencies, through features and news in the press from one end of the Dominion to the other. Moving pictures are regularly utilized and a chain of ten Canadian radio stations will, within the next few weeks, have completed a total of approximately 300 health broadcasts which have reached almost every section of the country from northern British Columbia to the east.

A Speakers' Bureau supplies lecturers on health and hygiene topics. A social hygiene library is at the service of those interested. Literature on different aspects of health and hygiene is widely distributed. Public meetings and health exhibits are used as additional means of disseminating accurate information.

The work, which is rapidly developing, is a convincing demonstration of the growth of "health consciousness" throughout the Dominion.

THE CANADIAN RED CROSS SOCIETY

The Canadian Red Cross Society is pledged to continue its service to the ex-soldier and to strive "for the improvement of health, the prevention of disease and the mitigation of suffering throughout the world."

Nothing need be said about the origin of the first of these duties. The second was delegated to the Society by the Treaty of Versailles. Under

that treaty the signatory nations agreed to encourage and promote their national voluntary Red Cross organizations for this trinity of splendid purposes.

In Canada besides continuing to care for the ex-soldier the Red Cross is performing a number of most important and beneficial activities. It introduces Junior Red Cross into the schools. It establishes Outpost Hospitals in pioneer districts. It organizes Classes in Home Nursing. It operates Seaport Nurseries for immigrant women and children at the eastern ports. It provides Disaster Relief. It fosters the employment of Public Health Nurses. It distributes Health Literature, and in many other practical ways it contributes to the welfare of the Canadian people.

CANADIAN COUNCIL OF CHILD WELFARE

The Council originated in a large consultative meeting called at Ottawa by the Federal Government in October 1920, as a result of recommendations from practically every national child welfare agency in the Dominion. At this, and a subsequent meeting in May 1921, the constitution and aims of the Council were agreed upon.

The Council at present is composed of 20 national, 35 provincial and 84 municipal associations interested in child welfare effort, in addition to the hundreds of individual members. The executive consists of representatives of each of these constituent bodies. The governing council also includes the chairman of the five sub-sections

under which the work of the Council is carried on. Each of these sections advises on the particular problems within its field, provides the section programme of the annual conference, and assumes responsibility for publications on its phase of the general problems. The Council has a French-speaking Section also.

The Council is supported by membership fees and private donations, and by a grant from the Federal Government. It has been operating under a full-time secretary since the close of 1925 only.

Activities so far have included the annual conference, educational lectures by its officers, publications of articles in the popular press, publications on various phases of the child welfare problem, special services in various child welfare fields and in the last year, some important field studies.

The office of the Council is at 408 Plaza Building, Ottawa, and Miss Charlotte Whitton is the Executive Secretary.

THE CANADIAN TUBERCULOSIS ASSOCIATION

The Canadian Tuberculosis Association was originally known as The Canadian Association for the Prevention of Tuberculosis. It was formed in 1900 at a meeting assembled at the request of Lord Minto the Governor-General, as a result of a letter received from King Edward the VII.

Article II of its Constitution states seven functions:—

(1) By enlisting the co-operation of the people generally with the medical profession, and by increasing the

interest in means for lessening the ravages of the disease;

(2) By investigation into the prevalence of tuberculosis in Canada, and by collecting and publishing useful information.

(3) By advocating the enactment of appropriate laws for the prevention of the disease.

(4) By co-operating with governments and other organizations in measures adopted for the prevention of the disease.

(5) By promoting the organizations and work of Provincial Associations and their affiliation with the Canadian Association;

(6) By encouraging all concerned to provide suitable accommodation for consumptives, in hospitals, sanatoriums, and otherwise.

(7) By such other methods as the Association may from time to time adopt.

THE VICTORIAN ORDER OF NURSES FOR CANADA

The Victorian Order of Nurses for Canada was inaugurated in 1897 as a memorial of the Diamond Jubilee of Her Majesty, Queen Victoria. In the Royal Charter, granted then, and amended from time to time, are set forth the following objectives of the Order.

(a) To establish and maintain visiting nursing services in Canada.

(b) To engage and direct the activities of nurses to undertake the care of the sick in their homes, to demonstrate nursing methods and to aid in the prevention of disease and the maintenance of health.

(c) To assist in training nurses in public health nursing.

(d) To assist in establishing and maintaining the highest possible standard of efficiency for all nursing services.

The Victorian Order is national in scope, having sixty-nine districts across the continent from the Atlantic to the Pacific. Its work is directed and coordinated by a Central Board of Governors at Ottawa, each district at the same time enjoying a large measure of autonomy.

Bedside nursing is the fundamental principle of the Victorian Order and its nurses, in addition, are engaged in a comprehensive health programme which includes pre-natal and child welfare work, and in some districts, school and industrial nursing.

THE CANADIAN NATIONAL COMMITTEE FOR MENTAL HYGIENE

On January 1, 1928, there were 23,725 patients in the mental hospitals of Canada. It is estimated, further-

more, that there are as many persons still in the community who, if proper facilities were provided, should be receiving treatment or advice with respect to their mental health.

In addition to this important group minded, or mentally deficient persons in Canada, the greater number of whom are receiving little or no attention.

To stimulate governments in the provision of suitable agencies for the early treatment of mental disease; to aid and encourage research with a view to prevention and cure; to urge upon governments and boards of education the need for special educational methods and institutions for mental deficient; and to promote in the community, generally, a realization of the devastating nature of mental disability in order that public co-operation may be assured—these are some of the objects of the National Committee for Mental Hygiene, a voluntary organization established in 1918, with headquarters at 102 College Street, Toronto.

CURRENT HEALTH LITERATURE

A Selected Public Health Bibliography with Annotations

RUGGLES GEORGE, B.A., M.B., D.P.H.

The Common Cold—The author concludes that the common cold is not essentially an infection but a systemic disturbance due to an acidosis caused by poorly balanced diet, lack of exercise, fatigue, or constipation. The common cold can best be aborted and treated by thorough alkalization.

CHENEY, V. S. The common Cold Etiology, Prevention and Treatment. *American Journal of Public Health*, January 1928, page 15.

Measles in Institutions—A study of measles in institutions for children in New York State from 1915 to 1924. The use of convalescent measles serum apparently influenced favorably the mortality rate if administered during the incubation period but its use as a prophylactic was disappointing.

GODFREY, E. S. Jr. Measles in Institutions for Children. *Journal of Preventive Medicine*, January 1928, page 1.

Convalescent Measles Serum—A series of epidemics of measles on rubber plantations in Malaya was controlled by the use of convalescent measles serum.

KINGSBURY, A. N. Serum Prophylaxis of Measles. *Journal of Hygiene*, November 1927, page 1.

School Hygiene—A review by the Chief of the Division of Physical Education and School Hygiene of the United States Bureau of Education.

ROGERS, J. F. The Present Status of School Hygiene in the United States. *Ameri-*

can Journal of Public Health, January 1928, page 53.

Vaccination by Puncture—The Department of Health, Canada, has issued a leaflet advocating the tangential puncture method of smallpox vaccination. Copies of this leaflet may be obtained upon application to the Department of Health, Canada.

DEPARTMENT OF HEALTH, CANADA. Vaccination by Puncture. Issued by Department of Health, Canada, Ottawa.

School Health in Ontario—From a study of school health supervision in Ontario, the author concludes that out of the estimated 30 per cent. of pupils who develop defects, pre-school work reaches 40 per cent., leaving about 60 per cent. to be found in schools.

PHAIR, J. T. School Health Supervision in Ontario—Further Observations. *Child Health Bulletin* (The American Child Health Association). January 1928, page 1.

Vital Statistics for 1927—The records of the Metropolitan Life Insurance Co. for 1927 show a decrease in the general death rate in the industrial population of the United States and Canada, the lowest death rate on record for tuberculosis but an increase in fatal accidents especially from motor car fatalities and from drowning.

METROPOLITAN LIFE INSURANCE CO. Nineteen Twenty-Seven Will Be a Record Health Year. *Statistical Bulletin*. (Metropolitan Life Insurance Co.) December 1927, page 1.

Prohibition and Public Health

—The effect of the prohibition situation on the public health of the United States has been good where prohibition has been effective but the situation has been unsatisfactory to the degree in which there has been no prohibition.

DUBLIN, L. S. Has Prohibition Improved Public Health? *American Journal of Public Health*, January 1928, page 1.

Cancer Control—The rôle of the Public Health Nurse in the control of cancer.

ROSS, E. How We can Help in the Control of Cancer. *Public Health Nurse*, January 1928, page 13.

School Ventilation — Observations with fresh air, recirculated air and ozone with recirculated air.

HEATH, R. F. and PATTERSON, J. S. School Ventilation Studies in Toronto. *Journal of the American Society of Heating and Ventilating Engineers*. December 1927, page 715.

Sex Education—A joint study by the American Social Hygiene Association in cooperation with the Social Hygiene Committees in 202 universities and colleges.

GALLOWAY, T. W. Outline of Material for Sex Character Education in Courses in Physical Education. *American Physical Education Review*. December 1927, page 742.

Health Examinations—An account of the health examination demonstration conducted in East Harlem, N.Y.

LEBER, O. H. and WIDDEMER, K. The Doctors Demonstrate. *Survey*, January 15, 1928, page 501.

Rural Child Welfare—An address by the Chief of the Children's Bureau of the United States Department of Labor, presented before the National Council on Social Work.

ABBOTT, Grace. Developing Standards of Rural Child Welfare. *Hospital Social Service*, December 1927, page 495.

Nursing Care—A statement by the Chief Superintendent of the Victorian Order of Nurses for Canada.

SMELLIE, E. L. Nursing Care for Those of Modern Means. *Social Welfare*, January 1928, page 79.

Preventive Nutrition—An account of preventive nutrition work as carried on in a county health programme by the American Red Cross in Michigan.

CHURCH, I. M. Preventive Nutrition in a County Health Programme, *American Red Cross Courier*, January 16, 1928, page 16.

Public Health Nursing — The relationship between public health nursing and infant mortality.

EARP, J. R. Ohio's Bargain Babies. *Survey*, January 15, 1928, page 497.

Scarlet Fever Control—A revision of the bulletin on the prevention and control of scarlet fever issued by the United States Public Health Service.

Scarlet Fever, Its Prevention and Control. *Public Health Reports (U.S.P.H.S.)* January 13, 1928, page 57.

Diphtheria Carriers—A recommendation of the use of mercurochrome as a local application for the treatment of diphtheria carriers.

BONSFIELD, P. The Treatment of Diphtheria Carriers. *The Lancet*, January 14, 1928, page 79.

BOOK REVIEWS

D. T. FRASER, B.A., M.B., D.P.H. and R. R. McCLENAHAN, B.A., M.B., D.P.H.

Hay-Fever and Asthma. By Ray M. Balyeat. F. A. Davis Co., Philadelphia, 1927, 198 pp. Price \$2.00.

This is a small book with a good index. As stated by the author it is meant primarily for sufferers of hay-fever and asthma rather than for physicians.

The first 148 pages are divided into a number of chapters which deal with the subject in two ways. Firstly, those questions in which patients are nearly always interested are concisely answered. Secondly, in an intelligent fashion and on lines that are accepted to-day, a clear description is given regarding the varied causes of their condition, how they can be detected and treated. In no place does the author overstep what is regarded as accepted on experimental or clinical lines.

The chapter on the "Importance of Treatment" might perhaps be picked out as one of the best examples. In it the value of treatment is fairly outlined but at the same time the importance of the treatment of hay-fever as a preventive for asthma is stressed. The basis of seasonal or co-seasonal treatment is considered together with the need of intelligent co-operation on the part of the patient. Drugs are taken up and dealt with fairly. Patients are advised to have their physician instruct them in the proper use of adrenalin, which under many circumstances should be the routine rather than the exception.

The reasons why some may experience benefit by change of climate

are given and also why change of climate is more frequently a failure. "Doctors who advise their patients to change climate for relief of asthma or hay-fever symptoms do them and their friends a great injustice, as the chance of obtaining relief is not great enough to justify such a method." The rôle of upper respiratory tract infections is dealt with intelligently and on sound lines. The case records of individual types of hay-fever and asthma are well selected and illustrate the principles laid down in the main body of the book.

In two points only would there seem to the reviewer to be some grounds for criticism. The results of vaccine treatment seem a little better than is usually obtained and again the percentage of asthmatics whose causes are not demonstrable is perhaps minimized.

In conclusion, this book admirably fulfils its purpose and even for a physician who might be interested in the modern view regarding asthma and hay-fever as clinical expressions of allergy the book will be found informative.

A. H. W. C.

Evolution of Preventive Medicine.

By Sir Arthur Newsholme, London, England. Williams and Wilkins, Baltimore, 1927. 256 pp. Price \$3.00.

The genesis of Preventive Medicine is to be found in records of some practices employed centuries ago by the ancient Hebrews, Egyptians, Chinese and other races. Experience taught "What things were salutary

and what harmful" to their physical well-being. Generalizations upon the results of such experience were made applicable to large groups of people through rites observed in religious ceremony, through tribal edicts or legal enactments. From these simple beginnings preventive medicine has evolved through the mists of superstition and ignorance to a broader, clearer appreciation of its basic principles which are applied to wide aspects of human life in modern times.

The first chapters which contain a brief survey of the early history of medicine are followed by an account of the development of the important contributory sciences. The slow subversion of authority in medicine and its replacement by science in its various reciprocal relations, is duly emphasized. Following the recognition of infection, measures were introduced in an endeavour to prevent disease to which man was subject. Considerable advance in control of certain diseases was made before Pasteur's epochal work initiated the discovery of the etiological causes of these diseases. The contribution rendered to the progress of alleviation of conditions by various individuals who helped forward the common cause by energetically forcing the focus of the attention of the public and the vested authorities upon the current abuses receives adequate treatment in the volume.

Sir Arthur Newsholme has not confined his book to a history of the prevention of infections with which he might have concerned himself largely; he has devoted much space to

the great advance in the knowledge of laws of health apart from infection. While the growth of the idea of contagion is fascinating, no less romantic is the development of sanitation in all its ramifications. The gradual recognition of the effect of poverty, of the importance of proper food, sunlight and air, of the necessity for development in infant and maternal welfare are carefully brought out.

Matter and treatment is admirably arranged, not only for members of the medical profession who may be engaged in practice, in teaching or in the field of prevention, but also appeals to the interest of the lay reader whose intelligent concern with public health has increased vastly. The author has "traced for us through the ages and separated from non-essentials, the gradually increasing sum of knowledge which has increased first slowly and in recent years rapidly, rendering possible diminished disease and enhanced health."

M. M. J.

Health Supervision and Medical Inspection of Schools. Thomas D. Wood, Am.M.D., and Hugh G. Powell, A.B.,M.D. W. B. Saunders Company, Philadelphia, 1927. 598 pp. Price \$8.25.

The authors have collaborated in the presentation of a work that is complete in every detail. They trace the progress of school health supervision from its inception to the present day, duly emphasizing the circumstances associated with its expansion, outlining its possibilities and drawing attention to its limitations.

The chapters dealing with records are particularly complete, and the

emphasis placed on the desirability of thoughtful and periodic appraisal of the service proffered in any community is very timely. The authors have gone far-a-field in their efforts to gather data which might be of interest to those responsible for the establishment or conduct of any type of school health service, from the most rudimentary to the most elaborate. That there is ample justification for each of the activities which go to make up a well rounded out programme is set forth, and the necessity of associating with the work an adequate staff of well qualified and enthusiastic individuals is pointed out.

Careful consideration is given to the role of the school health service in its relationship to those children in need of special educational opportunities, and that portion of the book which deals with communicable disease control and prevention is replete with useful suggestions drawn from the experience of many municipalities.

To all those engaged in any phase of this important health activity, the book offers much that will be of value.

J. T. P.

Transfusion of Blood. By Henry M. Feinblatt, New York. Mac-Millan Company, 1926, 133 p. \$3.25.

Dr. Feinblatt, author of "Clinical Laboratory Medicine", has now completed a survey of the subject of blood transfusion. He has covered the whole subject very well, arranging his material in a readable manner but does not go very deeply into any one phase. Several methods of transfusing are mentioned and naturally the author describes his own method in greater detail than the rest, but seems to say very little about the direct multiple syringe method which is the one most commonly used. His chapters on "Blood groups" and "Physiologic considerations" contain much valuable data and should be of help to students or internes wishing a brief survey of the subject. The book is of most value for the ready references to the many phases of the subject which it contains.

D. MacL.

BOOKS RECEIVED

Fresh Air and Ventilation. C. E. A. Winslow. E. P. Dutton & Co. New York. Pp. 182.

Food Infections and Food Intoxications.

Samuel Reed Damon. Williams & Wilkins, Baltimore.

Report of the Provincial Board of Health, British Columbia, 1926-27.

NEWS AND COMMENTS

The Municipal Council of Saint John, N.B. at its last meeting decided unanimously to purchase the building at present housing the Health Centre. This beautiful stone building, formerly the finest private residence in the city, and occupied by their Royal Highnesses King George and Queen Mary, when, as Duke and Duchess of York, they visited Saint John in 1901, has been occupied for the past five years as a Health Centre.

This Health Centre houses the officials of the Provincial Department of Health located in the city, the Board of Health, the Victorian Order of Nurses, Tuberculosis Association, and other health organizations of a voluntary nature.

The Health Centre Association feels a commendable pride in the fact that after five years of demonstration, the Municipal Council was convinced that the Health Centre had become an essential factor in the public health life of the community to the extent that it was prepared to purchase the building, and thus secure the permanency of occupation necessary to a fuller development of the work.

Dr. Ross Miller of Amherst, N.S., has been appointed Director of Medical Services in the Welfare Branch of the Department of Soldiers' Civil Re-establishment.

The estimates of the Department of Health, City of Toronto, for 1928, call for a total expenditure of \$928,685 as compared with expenditures in

1927 of \$878,430. With an estimated population of approximately 580,000, the estimated per capita cost \$1.60. The table below shows the division of the budget.

	Amounts	Per cent of Total Budget
General Administration ..	\$ 43,280.00	4.6
Medical, Dental and Quarantine	227,062.00	24.4
Public Health Nursing	266,341.00	28.7
Laboratory Service	41,280.00	4.4
Isolation Hosp. Service	152,773.00	16.5
Food Control.....	81,183.00	8.7
Sanitation Service	116,766.00	12.6
	<hr/> \$928,685.00	100.0

The Calgary Council of Child Welfare stood second in the 1926-27 Imperial Baby Week Challenge Shield Competition, open to all local communities in the British Empire exclusive of the British Isles. The shield was won by Bellary Municipality, Madras Presidency, India. The competition is conducted by the National Baby Week Council, London, England, for the purpose of promoting "right ideas and ideals regarding fatherhood, motherhood, and the well-being of infants and little children.

Canadian communities wishing information and regulations regarding the competition should apply to the Division of Child Welfare, Department of Health, Ottawa, or to the Chief Medical Officer of the province.

In Saint John, New Brunswick, January, following months of preparatory work sponsored by the Board of Trade, 26 welfare organizations decided to establish a Welfare Council. A strong executive has been chosen

and consitution and by-laws adopted. This Council will mean a long step forward in "co-ordinating local welfare effort and preventing overlapping and overlooking."

A Conference on Rheumatic Diseases is to be held at Bath, England, on Thursday and Friday, May 10th and 11th, 1928. Sir George Newman, Chief Medical Officer of the British Ministry of Health, has kindly consented to act as President of the Conference. There will be three Sessions: (1) Social Aspects, presided over by Lord Dawson of Penn., Physician to H.M. King George, (2) Causation, presided over by Sir Humphry Rolleston, (Regius Professor of Physic, University of Cambridge), and (3) Treatment, presided over by Sir E. Farquhar Buzzard, (Regius Professor of Medicine, University of Oxford). The local Hon. Medical Secretary is Dr. Vincent Coates, 10, Circus, Bath, England.

The death took place recently of Mr. John Kelly, for 37 years a member of the Saint John Board of Health, and for the past nine years the very efficient chairman. Few men in Canada have served so long on a Board of Health and have seen such advances in public health methods during their term of office. The Hon. R. W. Wigmore, City Commissioner has been elected chairman of the Board.

A course of lectures on Mental Hygiene by men of international

repute, has been started in the University of Toronto and will be continued through February and March. The course was arranged by the Canadian National Committee for Mental Hygiene in co-operation with the Department of University Extension of the University of Toronto. The aim of the lectures is to outline for the individual a complete mental hygiene background from the time of early childhood, so important in character and habit formation, through the trying period of adolescence and into later life. The course is as follows:

The Prevention of Mental and Nervous Disorders, Dr. C. Macfie Campbell—Harvard Medical School.

The Growth of the Child, Dr. Bird T. Baldwin—State University of Iowa.

The Mental Hygiene Movement in Canada, Dr. Chas. F. Martin—McGill University.

Mental Hygiene in the School, Dr. Smiley A. Blanton—Vassar College. Mental Hygiene in the Home, Dr. Esther A. Richards—Johns Hopkins University.

Mental Hygiene in Public Health, Dr. C. E. A. Winslow—Yale University.

Mental Hygiene of Childhood, Dr. Wm. A. White—Saint Elizabeth's Hospital, Washington, D.C.

At a complimentary dinner tendered recently to Dr. Lee K. Frankel, of the Metropolitan Life Insurance Company in New York, one of the most interesting addresses delivered was that of Professor C. E. A. Winslow. Professor Winslow, in the

course of an inspiring address on the Health Movement in the United States pointed out the great contribution which Dr. Frankel has made to the whole public health movement on this continent. Dr. Frankel, he said, established the nursing service of the Metropolitan Life Insurance Company, conceived and developed the Framingham and other health demonstrations, and was really the "man behind the gun" in the health education work of the Company. Dr. Winslow further told of the signal service which Dr. Frankel has rendered to the American Public Health Association, and to all the voluntary health agencies in the United States by his leadership in the effort to co-ordinate their activities. The dinner was a well deserved tribute to a health leader whose helpful influence has been appreciated not only in the United States but also in Canada.

In view of the publicity given to the statement that deaths have occurred in New South Wales from diphtheria inoculation the following cable, received by the Canadian Social Hygiene Council, will be of interest to the readers of the PUBLIC HEALTH JOURNAL—

"Twelve deaths Queensland follow-

ing toxin-antitoxin. Committee appointed Federal Government now enquiring cause. Will wire you results when available.

Health, Sydney."

It is interesting to note that the product used in Canada is not toxin-antitoxin but Toxoid.

Interesting comments on Scarlet Fever serum are contained in a recent bulletin from the Nova Scotia Department of Health. The material, quoting Dr. H. B. Cushing of Montreal, reads, in part, as follows:—

"Perhaps the most striking instance was in the Montreal Foundling and Baby Hospital, where three cases of scarlet fever occurred simultaneously from some unknown source. Eighty-five of the inmates were given serum and no one developed the disease. Four were omitted, for various reasons, and of these, two developed scarlet fever within a week. There were no further cases. On the other hand, the immunity conferred cannot be relied upon for more than two weeks. In other words, if a scarlet fever case is kept in a home and cannot be absolutely isolated, the rest of the family cannot be protected by the use of serum alone, unless it is repeated every two weeks."
